

Schooling and Poverty in Lao PDR

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September 2005

* Abstract: The paper examines the current patterns and trends in education in Lao PDR from a poverty perspective. It asks how strongly related educational attainments and school attendance are to living standards in Lao PDR, and how this relationship varies by gender, geographical location and ethnic affiliation. The paper finds that these divisions are important in determining whether a child has access to schools (especially to good schools) and what level of educational attainment is possible for that child. In explaining enrollments, the paper finds that girls' schooling is more responsive to household and school characteristics than boys'. This is particularly so for poor, rural, non Lao-Tai girls. Indeed, the underlying factors that together explain why some children are enrolled and others are not, differ significantly across subgroups by gender, urban-rural residence and ethno-linguistic affiliation. The results imply that policy interventions to increase schooling will not succeed unless they are carefully tailored to the specific constraints and needs facing each group.

* This is a background paper to the World Bank's 2005 Poverty Assessment for Lao PDR. The authors wish to thank Boun Oum Inthaxoum, Jossy P. Moeis, Jennica Larrison and Constant Tra for their assistance and help. We received useful comments from Jeffrey Waite, Kaspar Richter and Martin Ravallion. The paper represents the views of the authors and should not be attributed to the World Bank.

CURRENCY EQUIVALENTS

(Exchange Rate Effective September 2005)

Currency Unit	=	Lao Kip (LAK)
1 Lao Kip	=	USD 0.00009243
USD 1.00	=	10,819 Lao Kip

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1. Introduction

Schooling is one of the best hopes for improving the lifetime prospects of a child—even one who is from a poor family. The benefits emerge in the physical, economic, and social aspects of life, and cascade across generations, increasing intergenerational socioeconomic mobility and reducing poverty. The poorest children and those who live in remote rural areas are often the hardest and costliest to reach with quality education.

This paper examines the current patterns and trends in education in Lao PDR from a poverty perspective. It explores the association between incomes and access to schools, the quality of schools, school attendance and school outcomes. It asks how strongly related educational attainments and school attendance are to living standards in Lao PDR, and how this relationship varies by gender, geographical location and ethnic affiliation. The paper finds that these divisions are important in determining whether a child has access to schools (especially to good schools), and what level of educational attainment is possible for that child.

The analysis draws primarily on data from the Lao Expenditure Consumption Survey for 2002/3 (LECS3), as well as a school survey that was fielded in conjunction with LECS3 using the same sampling frame. LECS3 is a nationally representative household survey that covers 8,100 households. In general, the analysis refers to Lao PDR in 2002/3, but where possible, comparisons over time are made using data from the earlier LECS2 which was fielded in 1997/8 and covered 8,882 households. The school survey collected detailed information on facilities, personnel and other characteristics for each primary school servicing children of primary school age surveyed in the LECS3, whether they attended or not.

The paper begins with an overview of trends in educational achievements and literacy over time, focusing on the differential progress across gender, location, ethno-linguistic family groups and economic welfare. Section 3 briefly describes how children allocate their time across schooling and alternative activities in a typical day. Section 4 next turns to schooling specifically, focusing on current enrollment rates at different schooling levels, continuation from one level to another, the age profile of students and the direct schooling costs faced by households. The paper discusses the supply and quality of school facilities and personnel in Section 5. How access to school infrastructure and quality varies across different population

sub-groups and living standards is again emphasized. Section 6 tries to disentangle the importance of the multiple factors that have been identified in previous sections as mattering to schooling. It does this by running multivariate regressions of the probability of school enrollment against individual, household, school and village-level characteristics. Section 7 offers some conclusions.

2. Educational stock and literacy: Progress over time

We begin with an overall summary of schooling levels in 2002/3 and over the preceding decades (Figure 1). Since we do not have long time-series data, we use differences in the average completed years of schooling of adults of different ages to derive historical changes in education levels.¹ To reduce the effect that higher mortality rates in older ages might have on the trend, we limit the age range to 60 years. We compare urban and rural populations, as well as males and females. Lao PDR is a very ethnically diverse country, especially in the north where every district has at least three ethno-linguistic families represented. In view of this diversity, we subdivide the geographical and gender groups by ethno-linguistic affiliation—Lao-Tai, the largest ethno-linguistic group, accounts for 67 percent of the population, and “Other,” which includes the Mon-Khmer (21%), Hmong-lu Mien (8%), the Chine-Tibetan (3%) and other smaller groups (1%).² It is convenient to classify the population into just these two groups, but it should be noted that they comprise 50 distinct ethnicities. The minority ethnic groups are found predominantly in rural areas, so due to small sample sizes, we do not show them under the urban

¹ The average years of schooling attained is defined as highest grade completed rather than the actual number of years enrolled in school. Due to grade repetition, the highest grade attained can imply fewer years of schooling than the number of years actually spent in school. We have no separate information on grade repetition from the surveys.

² These ethnic groups speak distinct languages, presenting the education system with a very difficult challenge. The Lao-Tai family is comprised of Northern, Central, and Southwestern branches. These branches have different languages, although most of the language groups belong to the Southwestern branch. Most of the Southwestern Tai languages (e.g., Lao, Lue, Tai Dam) have their own writing systems, but only the Lao language writing system has been developed and officially approved as the national language. In the Mon-Khmer ethno-linguistic family, two Khmou groups and the Katu have elaborated Laoicized alphabets and dictionaries that are not yet approved by the government. In the Chine-Tibetan family, the majority of languages are in the Lolo-Burmese branch of Tibeto-Burmese. Romanized scripts were developed for two groups in this family about fifty years ago by missionaries. The Hmong-Mien family is represented by five languages. Of these, the Moun and the Mien use Chinese characters to write, while the White Hmong use a Romanized writing system. There are Hmong alphabets using Lao characters for both White and Green Hmong, but these are not well-developed (World Bank 2004).

category.³ As we will see, ethnic groups who have no tradition of literacy and who do not speak Lao face a major educational disadvantage.

Figure 1: Average years of schooling by age of population aged 18 to 60, Lao PDR 2002/2



Source: LECS3, 2002/3

Note: The figures are drawn after taking a three age moving average. The data for the urban non-Lao-Tai are not plotted because of small sample size. Because the number of observations dwindles with age due to mortality, only data for those up to 60 years of age are plotted.

Gains in schooling levels

Overall, we find a steady increase in educational attainment over the last 40 years and important relative changes among the different population groups (Figure 1). One notable finding is that, in both urban and rural areas, the largest improvement was achieved by Lao-Tai

³ Baulch et al. (2004) find that, in addition to poverty and remoteness, the lack of instruction in minority languages (especially in the lowest grades) is one of the factors that discourage ethnic minority children from attending primary school in Vietnam.

women. In urban areas, Lao-Tai women rose to equal the average schooling years of Lao-Tai men. In rural areas, Lao-Tai women narrowed the gap with Lao-Tai men to just over a year and overtook non-Lao-Tai men some 20 years ago. In contrast, there is no sign of any gender convergence between men and women in the non-Lao-Tai groups.⁴ There are also signs of divergence among women, with a widening schooling gap between rural Lao-Tai and non Lao-Tai women and between rural and urban women.

In sum, for the population 18-60 years old, the average completed years of schooling started from a low base of two years nationally around 1960, and increased to five and a half years—an annual rate of increase of 0.08 of a school year, or one full school year every 12 and one half years (Table 1). At both start and end dates, educational attainment was higher for urban populations (3.9 years increasing to 8.2 years in 2002/3), and lower for rural population groups (1.6 to 4.6 years in 2002/3). Across gender and ethno-linguistic groups, rural non-Lao-Tai women have the lowest schooling during the period, as well as the lowest yearly gain over the last 40 years—just 0.04 of a school year per year. Even among those in the youngest birth cohort, these women had 6.6 fewer years of schooling than urban Lao-Tai ethno-linguistic men, the group with the most schooling. The urban/rural distinction is of course evolving over time due to urban migration and the upgrading of rural to urban areas. This makes the urban progress over the period all the more impressive, and it may also account for the relative stagnation in the literacy rate in recent years.

Table 1: Average years of schooling by age for population aged 18 to 60 in 2002/3

	Oldest	Youngest	Average yearly increase
National	2.1	5.6	0.08
Urban	3.9	8.2	0.10
Male Lao-Tai	5.7	8.4	0.06
Female Lao-Tai	6.5	7.8	0.03
Rural	1.6	4.6	0.07
Male Lao-Tai	3.5	6.4	0.07
Male non Lao-Tai	1.9	4.1	0.05
Female Lao-Tai	0.5	5.1	0.11
Female non Lao-Tai	0.0	1.8	0.04

Source: Calculated from the LECS3, 2002/3.

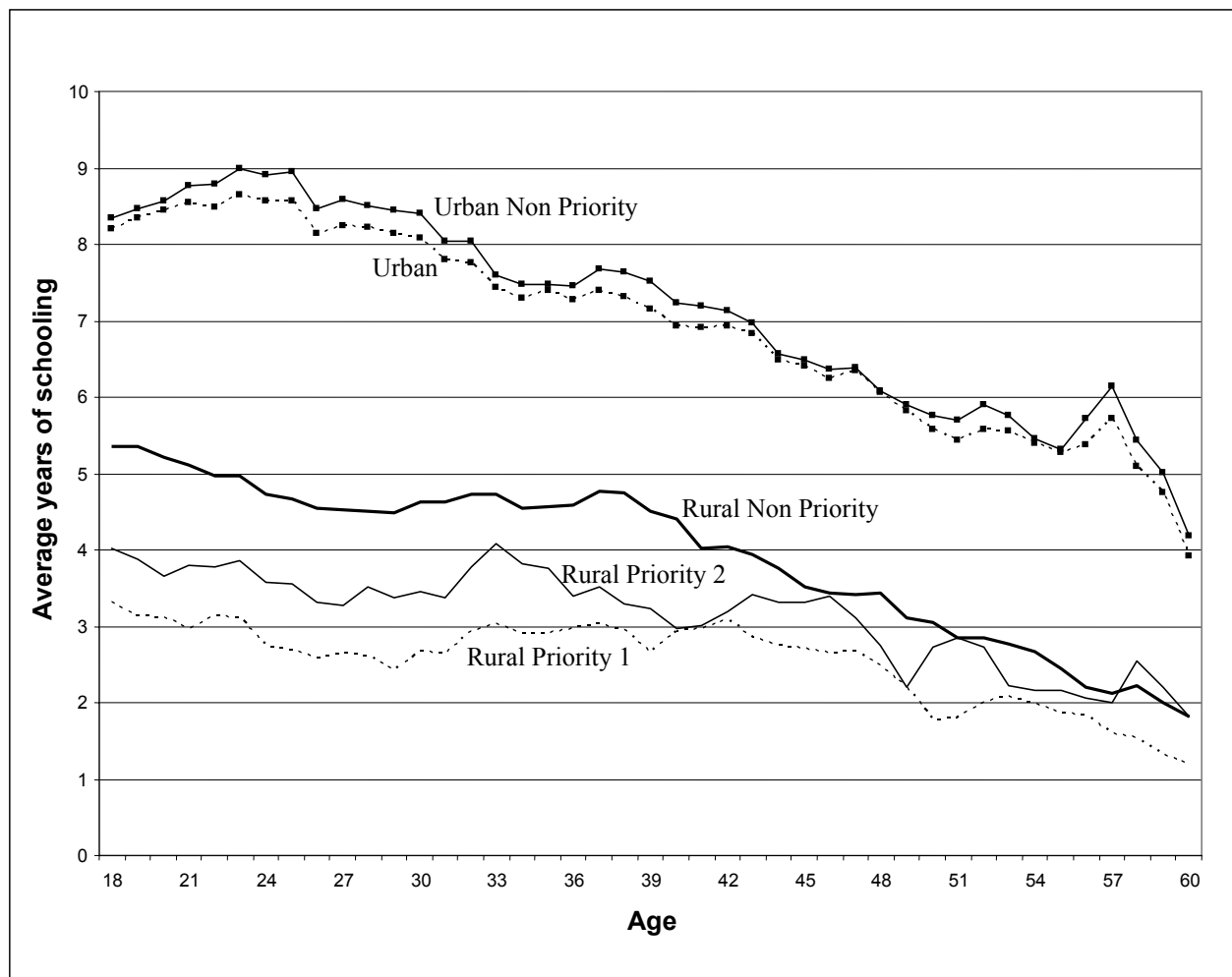
Note: The numbers are produced using a three age moving average.

⁴ Figure 1 shows three age-group moving averages.

As seen in Figure 1, there are significant disparities in literacy outcomes across urban and rural areas. But geographic variation in Lao PDR goes beyond urban-rural residence to significant variation across provinces and even districts, and by elevation of areas of residence; those living in the highlands have the lowest living standards and worst human development outcomes. This variation is one reason that in the late 1980s the government introduced a development policy of “focal sites” whereby highland villages would be resettled in lowland “focal” areas where basic public services such as schools and health facilities already existed, or could be more efficiently and cheaply provided (Evrard and Goudineau 2004). More recently in 2003, it also prompted the government to introduce a poor development area program that focuses interventions on 72 out of 143 total districts. These are identified as “priority districts.” Within this group a further delineation is made between first- and second-priority districts, 47 and 25 districts, respectively. Figure 2 presents the same information as in Figure 1, but here regrouped by whether the population lives in priority or non-priority districts, instead of ethno-linguistic group and gender. Figure 2 clearly shows that rural priority districts have indeed lagged behind non-priority districts in terms both of schooling levels as well as progress over time. Priority and non-priority districts started off with similar levels of schooling. However, the trend increase in average years of schooling over time is much stronger in non-priority districts where it reached almost five and a half years for the youngest cohort compared to four years in second-priority districts and just over three in first-priority districts. The policy focus on these districts and the priority ranking among them thus appears justified from an educational perspective.

All rural populations, whether they live in priority or non-priority districts, lag far behind urban populations and have seen less educational progress over time. Some priority districts contain a majority of urban villages. Unfortunately, there are too few observations to plot these separately. Figure 2 shows only the curves for total urban and non-priority urban areas. The latter are obviously better-off in terms of average years of school, though the differences are not large.

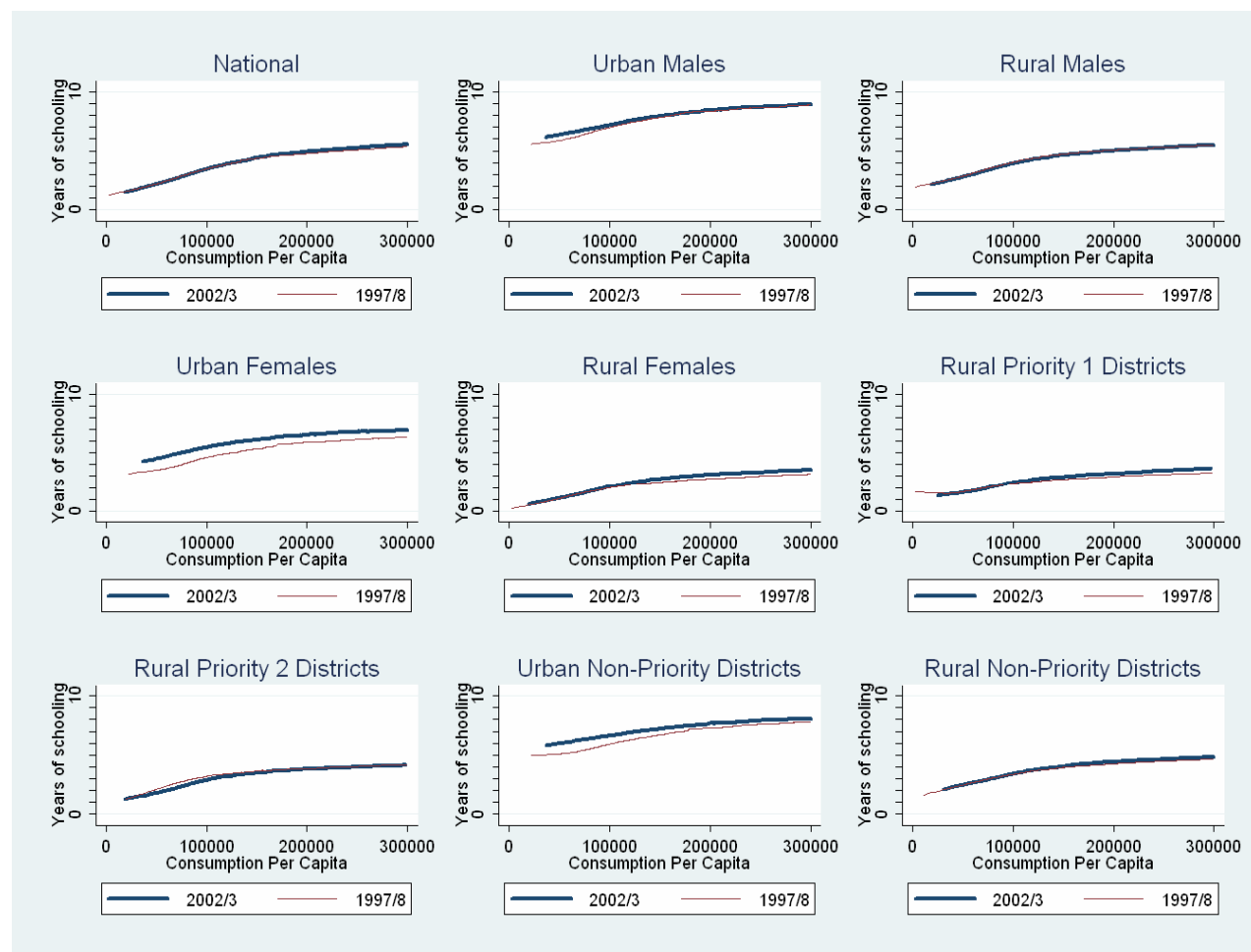
Figure 2: Average years of schooling by age for population aged 18 to 60, by priority districts, Lao PDR 2002/3



Source: LECS3, 2002/3.

Note: The figures are drawn after taking a three age moving average. Because the number of observations dwindles with age due to mortality, only data for those up to 60 years of age are plotted.

Figure 3: Average years of schooling and living standards population aged 18 to 60 in 1997/8 and 2002/3



Source: LECS2, 1997/8 and LECS3 2002/3.

Note: Consumption per capita is deflated by a regional price index and expressed in real 2002/3 KIP per month. The estimates are population weighted.

Figure 3 next introduces a poverty dimension to our examination of educational trends. Using data from the two LECS surveys, it shows non-parametric regressions of the relationship between the average years of schooling and household per-capita consumption (expressed in real 2002/3 Kips), as a measure of household economic welfare for different population groups, and how this relationship has shifted over time.⁵ If changes in the average years of schooling over the period spanned by the two surveys reflect only growth in consumption, then the education

⁵ The non-parametric regression gives the estimated mean of the variable on the vertical axis calculated at each value of the horizontal axis, without assuming a parametric model linking the two variables. These non-parametric regressions are locally weighted smoothed scatter plots.

and consumption curves representing the surveys would essentially coincide. This is typically what we see, with the clear exception being for urban females whose curve has shifted out along the entire distribution over time. Thus urban females have seen higher schooling at a given level of household economic welfare and this gain is stronger for the poorest. A shifting out of the curve is noted also for poor urban males and for better-off rural females. This divergence from the consumption trend suggests either a supply effect — due for example to a greater availability of public schools — or an increased preference for schooling — due for example to perceived higher returns to education, or both.

Improvements in literacy

The overall increase in years of schooling naturally translates into higher literacy, defined as having the ability to read and write.⁶ Plotting the literacy rate against age gives us historical patterns and trends that are similar to those we see for years of schooling (Figure 4). Urban Lao-Tai men have the highest literacy rate which is upwards of 90 percent. The continuous increase in completed schooling years of urban Lao-Tai women is reflected in a sharp increase in their literacy rate more than 30 years ago; as a result of this increase, the literacy rates of male and female 18-year-olds have converged. In rural areas, Lao-Tai men have achieved a relatively high literacy rate, but they have been overtaken by urban Lao-Tai women. Rural Lao-Tai women also have surpassed rural non-Lao-Tai men, while rural non-Lao-Tai women continue to have the lowest literacy rate, with only 30 percent of the youngest cohorts being literate.⁷

Figure 5 presents the same information for the population regrouped by rural priority or non-priority districts and by urban total and urban non-priority districts. The literacy patterns over time resemble those found for average years of schooling in Figure 2: The literacy rates of

⁶ The answers given to questions about whether one can read and whether one can write correspond almost perfectly across individuals. For this reason, we aggregate the two into one measure of literacy. Note also that there are two possible measures of literacy — whether one can read and write with or without difficulty. The 2002/3 LECS allows a finer definition than the earlier survey by giving an additional measure that excludes those who can read and write with difficulty. When we define literacy more strictly as being able to read and write without difficulty, literacy rates drop significantly, especially for poor groups (Appendix Table A1).

⁷ That literacy rates have increased is seen also from UNESCO data: Adult literacy (for all ages 15 and over) has increased from 48.2 percent in 1980 to 56.5 percent in 1990 and to 64.8 percent in 2004. Taking just the younger generation (ages 15-24), youth's literacy rate has increased from 62.6 percent in 1980 to 70.1 percent in 1990 and to 78.5 percent in 2004 (<http://globalis.gvu.unu.edu>). Literacy refers to being able to both read and write a short simple statement on everyday life, with understanding.

the youngest cohort are over 20 percentage points lower for first-priority districts and about 10 points lower for second-priority districts than for non-priority rural districts.

Adding a poverty dimension to the literacy trends, we see that progress over time has been shared by poor and non-poor people alike. Table 2 presents the literacy rate in 1997/8 and in 2002/3 by urban or rural location, gender and poor/non-poor status.⁸ Across sub-groups and surveys, the non-poor groups show higher literacy rates. The most dramatic difference is for rural women: 39 and 46 percent of poor rural women were literate in 1997/8 and 2002/3 respectively, compared to 58 and 67 percent of non-poor rural women. Reassuringly, however, the gains over time have generally been both absolutely and proportionally larger for the poor groups.⁹

Table 2: Changes in the literacy rate for the population aged 18 to 60, by gender, urban/rural location, and poor/non-poor status, 1997/8 to 2002/3 (%)

	Urban		Rural	
	Male	Female	Male	Female
Total				
1997/8	96.7	85.6	81.7	50.4
2002/3	96.9	89.8*	84.4*	59.8*
Non-poor				
1997/8	97.6	88.1	86.5	58.0
2002/3	97.6	91.4*	87.6*	67.1*
Poor				
1997/8	92.9	75.9	74.1	39.1
2002/3	93.8	82.1*	78.1*	46.0*

Source: LECS2, 1997/8 and LECS3, 2002/3.

Note: A person is defined as literate if they say they can read and write in 1997/8 and that they can read and write with or without difficulty in 2002/3. All estimates are population weighted. * Indicates 5% significance for the t-test that the literacy rate in 2002/3 is greater than that of 1997/8.

⁸ We do not include the ethno-linguistic dimension here as we are unable to identify ethnicity in LECS2. For the definition of poverty, see Richter et al. (2005).

⁹ Also see Appendix Table A2 for literacy rates by further geographical breakdown and by quintile.

Is the progress over time simply the result of economic growth and the increases in income levels that Lao PDR has experienced in recent years? Similarly to Figure 3, Figure 6 goes a step further to show how the relationship between the literacy rate and household per-capita consumption has shifted between 1997/8 and 2002/3 for various population groups. Here, we find that the literacy and consumption curves typically do not coincide. At any given real per-capita consumption level, literacy is higher in 2002/3 than in 1997/8. As with schooling levels, that gain could reflect any of several factors, including improvements in the availability of public schools, other policy initiatives such as literacy campaigns, a greater preference for schooling among the poor, an increase in the perceived returns to education, or some combination of these factors.

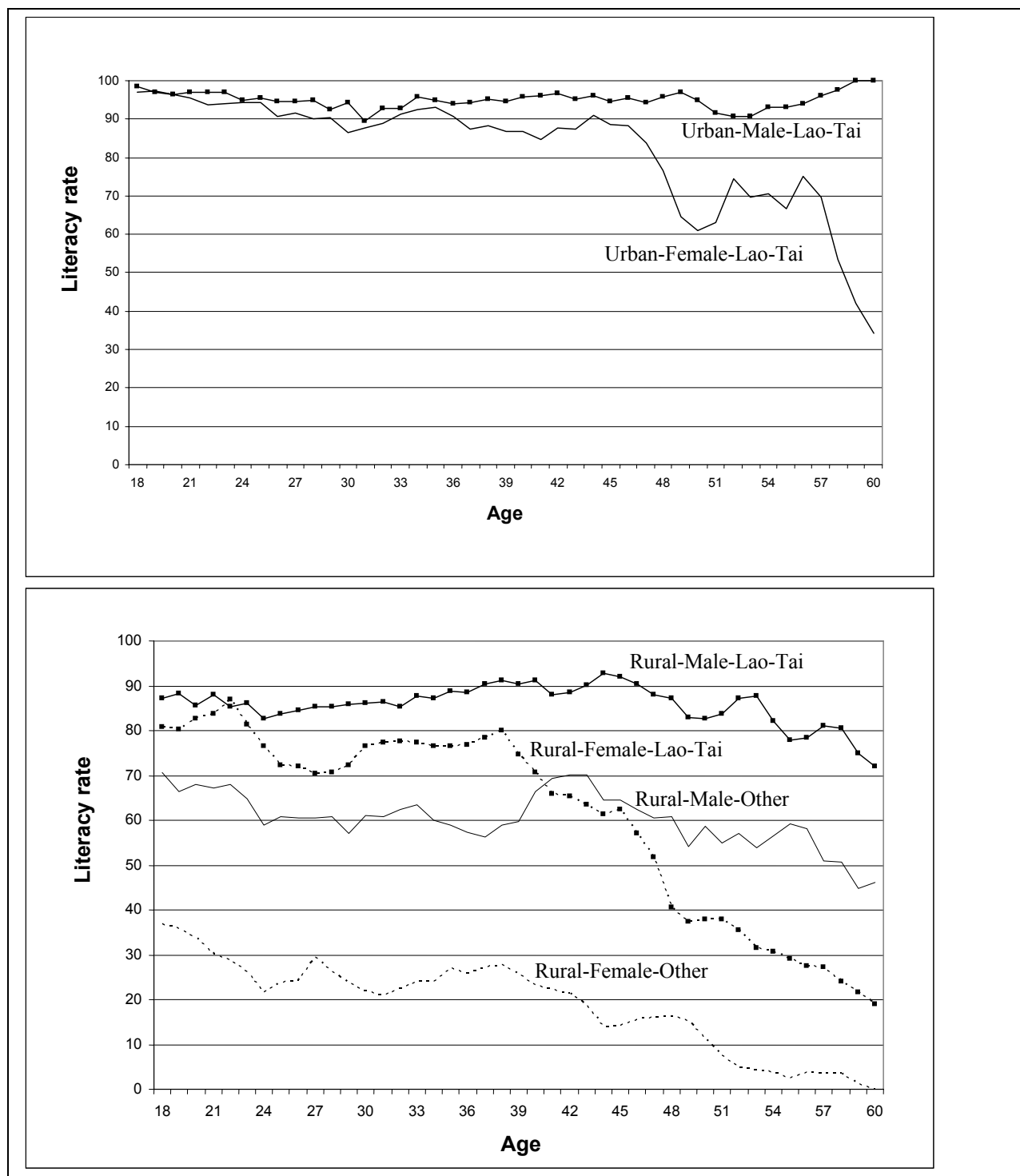
The upward shift in the relationship between literacy and household consumption is consistent with a relative gain in schooling for the poor (as also shown in Figures 7 and 8). For the national as well as for the rural distribution, absolute gains in literacy are found to be relatively constant across the income distribution. Of course, this translates into larger proportionate gains for the poor. However, some real differences in absolute gains are apparent for urban areas. Here the absolute gains have been largest for the poorest. This appears to be largely driven by the immense progress seen for poor urban females, who were particularly lagging relative to other urban groups. Poor boys have also achieved some relative progress though less than girls. Over time then, literacy is becoming less skewed by income in urban areas. We do not yet see this for rural areas. In rural priority districts, we see a shift in the curve for priority 1 districts that may reflect policy efforts related to having priority status. In contrast, gains in priority 2 rural districts reflect only the growth in incomes since 1997/8.

Dividing the samples of LECS2 and LECS3 into per-capita consumption quintiles, a comparison of the percentages of the population 18-60 years who never attended school in the two samples shows a strong and persistent pattern of schooling inequality between poor and non-poor people—but also a steady drop in this inequality between the two surveys, with the decrease being larger for the poorer quintiles, at least in urban areas (Figure 7).¹⁰ Adding back the key dimensions of gender and ethnicity, we find patterns that have already been noted and that emerge repeatedly (Figure 8). Urban groups have done consistently much better than rural

¹⁰ Throughout, quintiles are of the national population ranked by household per capita consumption in 2002/3.

groups, but within urban or rural areas, a much smaller proportion of the Lao-Tai than other ethno-linguistic groups have never attended school; men within each ethno-linguistic group have been more likely to attend school than women; and finally, the poor have lagged behind the non-poor. Particularly striking from the graphs is the pronounced disadvantage for non-Lao-Tai women in both urban and rural areas, but especially in rural areas.

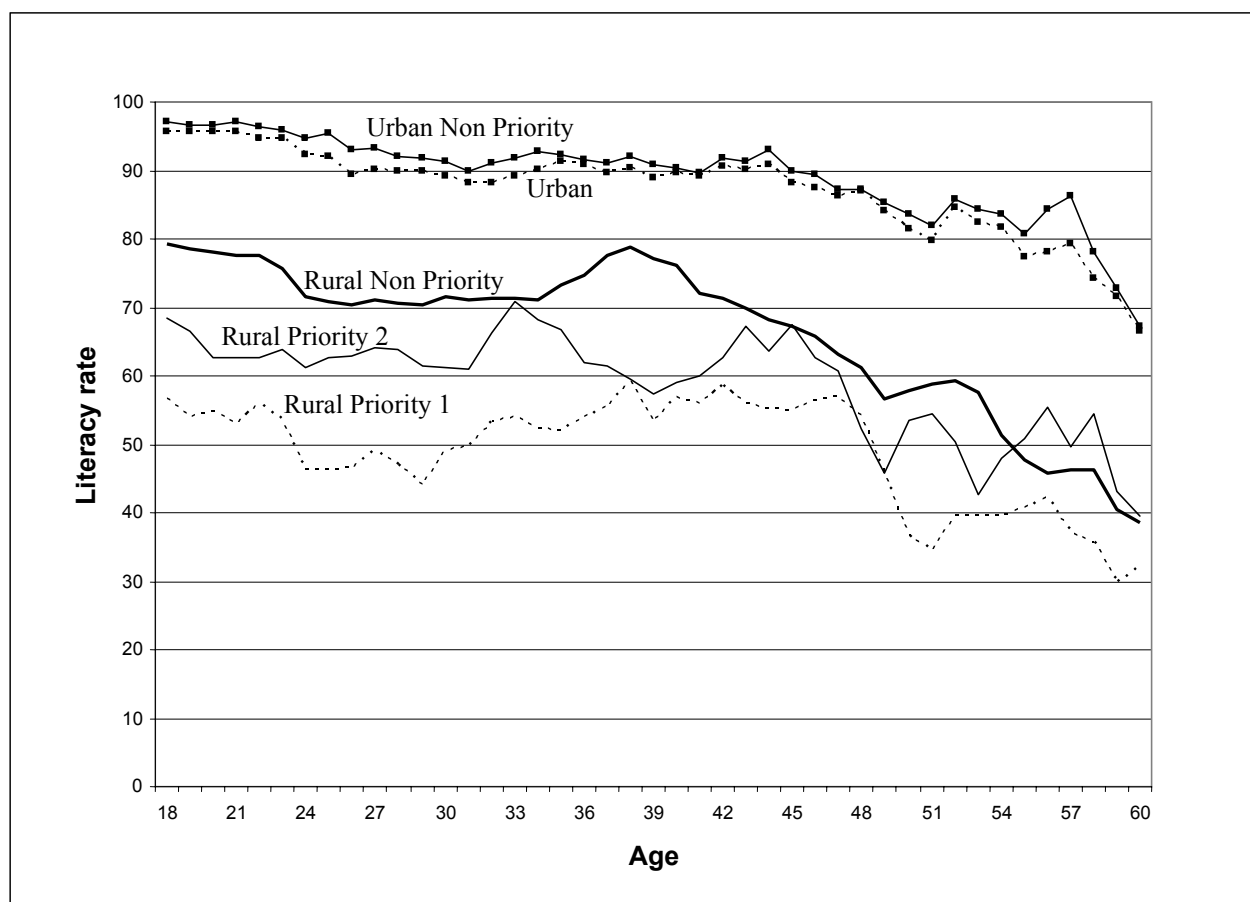
Figure 4: Literacy by age for population aged 18 to 60, Lao PDR 2002/3



Source: LECS3, 2002/3.

Note: The figures are drawn after taking a three age moving average. The data for the urban non-Lao-Tai are not plotted because of small sample size. Because the number of observations dwindles with age due to mortality only data for those up to 60 years of age are plotted. The literacy rate is defined as the percent of those at each age who say they can read or write without difficulty.

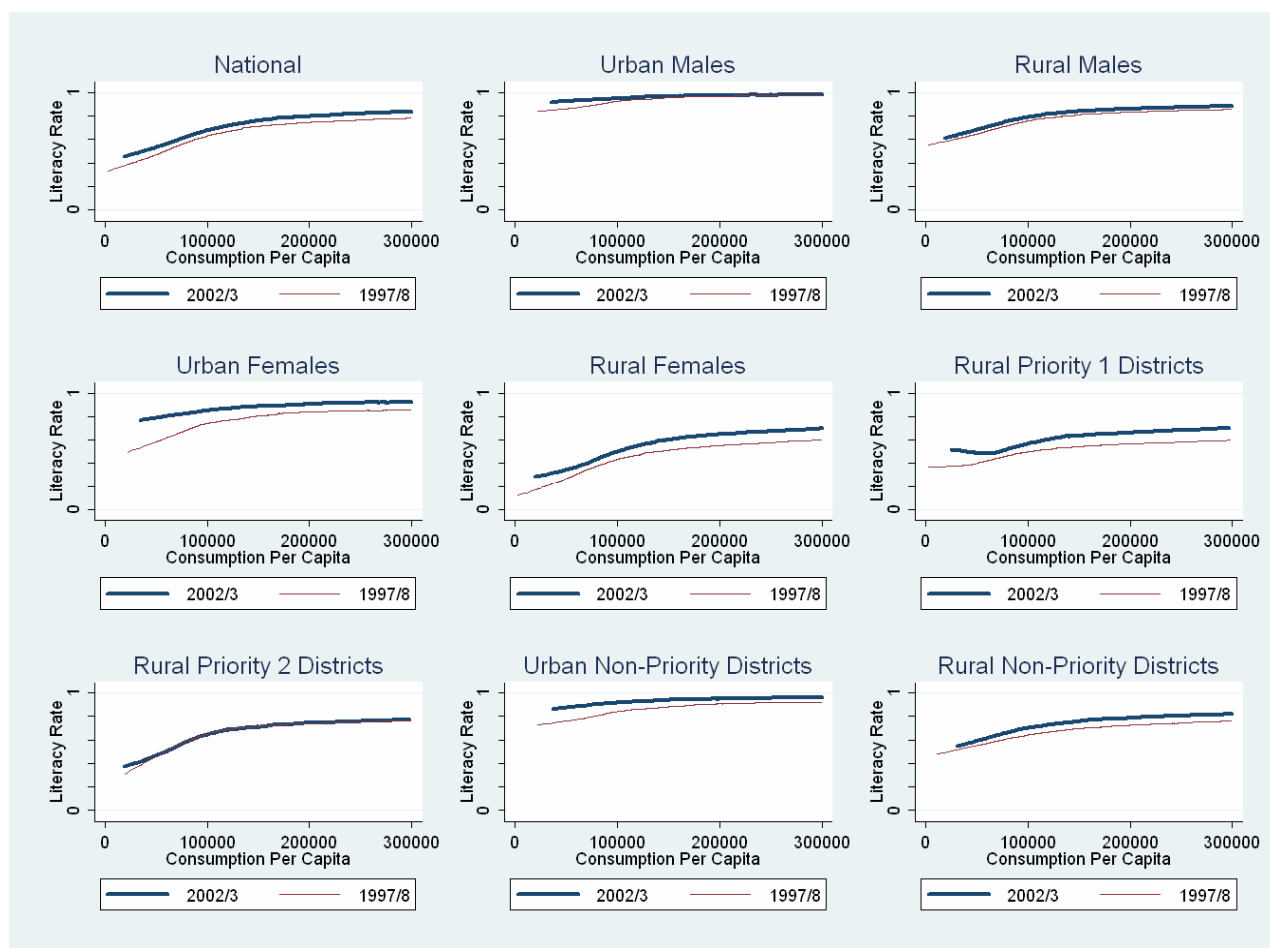
Figure 5: Literacy by age for population aged 18 to 60 by priority districts Lao PDR 2002/3



Source: LECS3, 2002/3.

Note: The figures are drawn after taking a three age moving average. Because the number of observations dwindles with age due to mortality only data for those up to 60 years of age are plotted. The literacy rate is defined as the percent of those at each age who say they can read or write without difficulty.

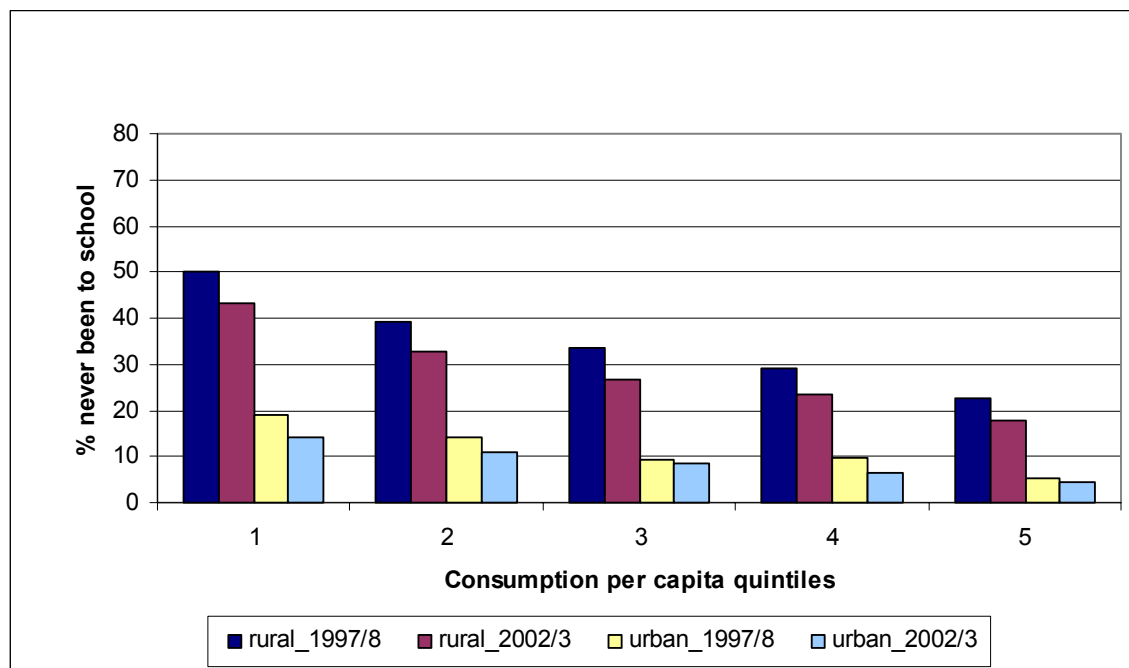
Figure 6: Literacy and living standards population aged 18 to 60 in 1997/8 and 2002/3



Source: LECS2, 1997/8 and LECS3 2002/3.

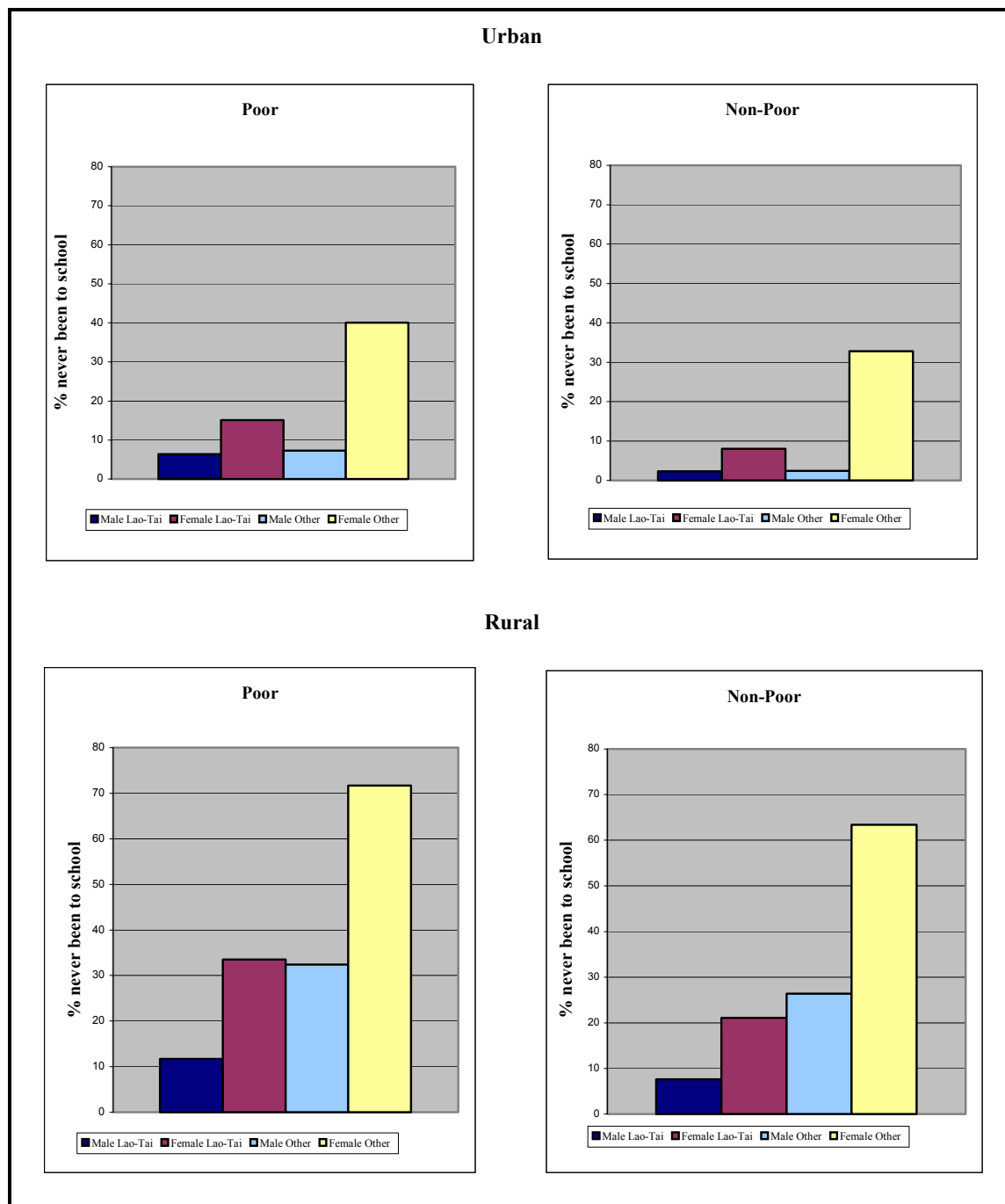
Note: Consumption per capita is deflated by a regional price index and expressed in real 2002/3 KIP per month. The literacy rate is given by the proportion of the population aged 18 to 60 who say that they can read and write in 1997/8 and that they can read and write with or without difficulty in 2002/3. The estimates are population weighted.

Figure 7: Population aged 18 to 60 who have never been to school, 1997/8 - 2002/3 (%)



Source: LECS2, 1997/8 and LECS3, 2002/3.

Figure 8: Population aged 18 to 60 who have never been to school by ethno-linguistic family, gender, urban/rural location, and poor non-poor status, Lao PDR 2002/3 (%)



Source: LECS2, 1997/8 and LECS3, 2002/3.

3. A child's day in Lao PDR

Schooling is only one of many possible uses of time in a child's day. Before turning to a detailed examination of schooling, it is useful to put schooling in context, by describing children's alternative activities. This can help us better understand the opportunity costs of children's time in this particular setting.

Table 3 shows how the typical day of an average urban or rural, poor or non-poor, male or female, child aged 10 to 16 is divided across activities. The information is produced by linking household and individual level data from the LECS3 with a module on time use that was administered to all individuals aged 10 and over residing in sample households.

All groups spend between 11 to 12 hours on sleeping, eating or personal care. The remaining 12 or so hours are devoted to leisure, work, schooling, travel and 'other'. School accounts for only a small part of each day—from 2 hours for poor rural females to a maximum of 4.4 hours for non-poor urban males—and is typically less than the time spent on leisure or working.¹¹ Males—whether poor or non-poor, urban or rural—spend a larger part of each day on leisure and schooling than females. By contrast, females spend the majority of their non-sleeping/eating time working, both on domestic and other labor.

Poor rural girls spend the fewest hours in school. They spend 5.3 hours working each day. Their rural, non-poor counterparts work 4.6 hours. Female labor in rural areas is almost evenly divided between on-farm agricultural (2 to 2.2 hours primarily tending rice, other crops and animals) and domestic work, which totals 2 to 2.5 hours for the non-poor and poor, respectively. Domestic work is devoted to the collection of wood and water, cooking, care of children and elderly household members and washing and cleaning. Poor rural girls spend close to one hour a day each on fetching water and fire wood, and on caring for other household members. Rural boys also spend a fair amount of time farming (1.7 to 2.1 hours), and hunting and fishing (one hour per day), but much less time helping with household chores.

¹¹ Note that schooling also includes any time spent on homework.

Table 3: Time use of children aged 10 to 16 by gender, urban/rural location and poor/non-poor status (hours per day)

Activity	Urban				Rural			
	Non-poor		Poor		Non-poor		Poor	
	Male	Female	Male	Female	Male	Female	Male	Female
Sleeping, eating, personal care	11.5	11.4	11.6	11.2	11.6	11.5	11.8	11.6
Leisure time	4.6	4.0	5.0	4.4	4.2	3.8	4.3	3.9
School	4.4	3.8	3.4	3.3	3.7	3.0	2.6	2.0
Remunerative work	1.8	2.1	2.5	2.3	2.7	2.7	3.1	2.8
<i>Work as employed</i>	0.3	0.2	0.5	0.2	0.1	0.1	0.1	0.1
<i>Own business work</i>	0.2	0.6	0.1	0.3	0.1	0.1	0.0	0.0
<i>Agricultural work</i>	0.7	0.7	1.1	1.1	1.7	2.0	2.1	2.2
<i>Tending rice</i>	0.3	0.4	0.3	0.5	0.7	1.1	1.1	1.3
<i>Tending other crops</i>	0.1	0.1	0.4	0.4	0.3	0.4	0.3	0.5
<i>Tending animals</i>	0.3	0.1	0.5	0.2	0.7	0.5	0.8	0.4
<i>Hunting/fishing</i>	0.5	0.1	0.7	0.1	0.8	0.1	0.8	0.2
<i>Construction</i>	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
<i>Handicraft (non textile)</i>	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1
<i>Weaving, sewing, textile care</i>	0.0	0.4	0.0	0.5	0.0	0.3	0.0	0.2
Domestic work	0.7	1.9	0.9	2.0	0.8	1.9	1.0	2.5
<i>Cooking</i>	0.2	0.6	0.1	0.7	0.1	0.5	0.2	0.5
<i>Washing, cleaning</i>	0.3	0.8	0.3	0.5	0.1	0.4	0.1	0.3
<i>Care for children/elderly</i>	0.1	0.3	0.3	0.4	0.2	0.3	0.3	0.8
<i>Collecting wood/ fetching water</i>	0.1	0.2	0.2	0.3	0.3	0.7	0.4	0.9
<i>Buying/shopping</i>	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0
Travel, Other	1.0	0.9	0.7	0.9	1.1	1.1	1.2	1.2
Total work & travel	3.5	4.9	4.1	5.2	4.6	5.7	5.3	6.5

Source: LECS3, 2002/3.

Note: Schooling includes time spent on home work.

In urban Lao PDR, children who work are more commonly involved in part time wage work or self employment activities than in rural areas. Both genders also spend an average of about one hour each day on agricultural work. In addition, one-half to three-quarters of an hour is devoted to fishing and hunting by boys, while girls devote about a half hour to sewing and weaving. For all groups of children, about one hour is spent on travel and the undefined ‘other’ each day. However, more time is spent on this last category by rural than by urban children.

4. Building an educational future: Current enrollment, age of entry, and continuation

This section describes specific patterns in the school enrollment of different groups of children and youths, including ages at entry and school continuation rates. These are key indicators to watch to assess the effectiveness of the education system and to identify what and where the problems are in the system. How students perform on standardized tests is also a good gauge of the system's performance, but Lao PDR does not yet have in place a national assessment system like some of the other countries in the region.

Enrollment by education level

In Lao PDR, the educational sequence starts with five years of the primary cycle, followed by three years each of lower- and upper-secondary school. Some students go directly from primary or lower-secondary school to teacher-training or vocational training which may take an additional year or two; alternatively, some graduate from the upper-secondary level to a university education. Ideally, a student enters primary school at age six and finishes university education at age 22.¹²

Based on the LECS data, the gross and net enrollment rates for children in the official primary school group (6 to 12) were 79.8 and 69.2 respectively in 2002/3. Using UNESCO data for several Asian countries for comparison, Lao PDR is not too far behind Cambodia or Thailand. In 2001, Cambodia's gross primary enrollment rate was 86.2 percent, and Thailand's was 86.3 percent, compared with Lao PDR's 82.8 percent.¹³

But averages mask enormous variance. As seen in Table 4, familiar patterns emerge, whether using an age-specific participation rate, gross or net enrollment rate. Urban children are more likely to be in school than rural children. Lao-Tai, male and non-poor children are all more likely to be enrolled than non-Lao-Tai, female and poor children, respectively. The one exception to this pattern is for urban girls who often have slightly higher enrollments than their fellow boys. First ignoring the poor/non-poor gap, the age-specific participation rates for children 6-12 range from a high of 92 percent for urban Lao-Tai girls to a low of 52 percent for

¹² Currently, a bachelor's degree course at the University of Lao is 5 years.

¹³ There may be some discrepancy between the UNESCO enrollment data for Lao PDR and the LECS3 data, so the cross-country comparisons are based only on UNESCO data (Table A3).

rural non-Lao-Tai girls—a 40-percentage point difference. For these two groups, the range for the gross and net enrollment rates (87 to 63 percent and 79 to 51 percent, respectively) each implies a nearly 25 to 30-percentage point difference. When income is considered, the gaps are clearly wider between poor and non-poor children. The age-specific participation rates range from 93 percent for non-poor Lao-Tai boys and girls in urban areas to 46 percent for poor non-Lao-Tai girls in rural areas, implying an almost 50 percentage-point difference!

Table 4: Primary school enrollments by gender, urban/rural location, ethno-linguistic family and poor/non-poor status, Lao PDR 2002/3 (%)

	Urban				Rural						Total
	Lao-Tai		Total		Lao-Tai		Other		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Total											
Age specific participation (6-12)	90.4	91.9	89.4	90.8	82.1	80.7	60.1	52.0	73.1	68.7	74.6
Net Enrollment Rate	78.4	78.7	78.6	78.1	76.8	74.4	58.6	51.0	69.4	64.7	69.2
Gross Enrollment Rate	89.1	86.5	90.5	86.6	91.2	84.3	78.3	63.2	86.0	75.5	79.8
Obs.	686	655	847	796	2356	2269	2139	2201	4495	4470	10608
Non-Poor											
Age specific participation (6-12)	92.7	93.4	91.8	92.5	86.8	85.6	65.8	59.5	80.1	77.2	81.8
Net Enrollment Rate	79.3	78.4	79.2	77.8	80.6	77.9	63.3	58.1	75.1	71.5	74.5
Gross Enrollment Rate	88.8	85.6	89.5	85.6	95.2	87.2	83.6	70.2	91.5	81.7	86.9
Obs.	541	533	624	603	1607	1513	990	988	2597	2501	6325
Poor											
Age specific participation (6-12)	82.0	85.9	82.4	85.1	71.3	70.2	54.9	45.7	62.4	56.7	62.5
Net Enrollment Rate	75.1	79.7	76.9	79.0	68.2	67.1	54.5	45.0	60.8	55.0	60.3
Gross Enrollment Rate	90.3	90.3	93.4	90.1	82.3	78.2	73.6	57.4	77.6	66.7	74.5
Obs.	145	122	223	193	749	756	1149	1213	1898	1969	4283

Source: LECS3, 2002/3.

Note: The denominator for the net and gross enrollment rates is the number of children aged 6 through 12.

All estimates are population weighted.

But even these numbers mask further disparities among ethnicity groups. Some groups that have been included in the “Other” ethno-linguistic group fare much worse than others (Table 5). Enrollment rates for rural 6 to 12 year olds in the Chine-Tibetan family are considerably lower than for others at 39 and 33 percent for boys and girls respectively. Rural girls in the

leftover “Other” group appear to do even worse with an age specific enrollment rate of 30 percent, although the sample size is small here. Due to their smaller sample size, especially in urban areas, we will present results for these groups in an aggregated form. However, it is important to keep in mind that there is heterogeneity within the non Lao-Tai ethno-linguistic group.

Table 5: Mean primary school enrollment rates for children aged 6 to 12 by ethno-linguistic family, gender, and urban/rural location, Lao PDR 2002/3 (%)

	Urban		Rural	
	Male	Female	Male	Female
Lao-Tai				
enrollment rate	90.4	91.9	82.1	80.7
no. of observations	686	655	2356	2269
Mon-Khmer				
enrollment rate	80.1	75.0	61.4	57.4
no. of observations	76	73	1271	1321
Hmong-lu Mien				
enrollment rate	87.8	84.5	66.0	48.3
no. of observations	50	42	560	580
Chine-Tibetan				
enrollment rate	86.5	100.0	38.7	32.7
no. of observations	32	23	260	248
Other				
enrollment rate	-	-	47.3	30.0
no. of observations	3	3	48	53

Source: LECS3, 2002/3.

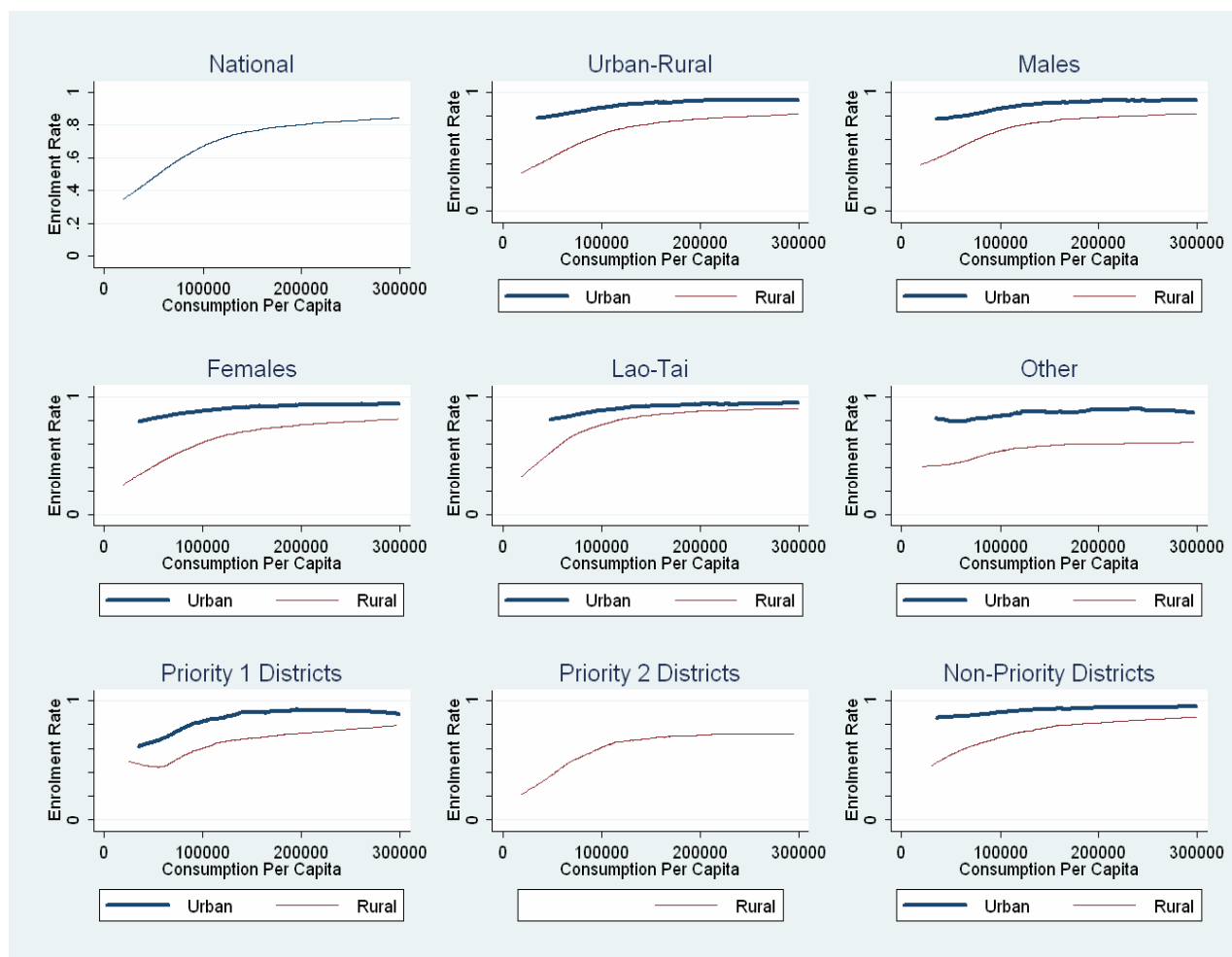
Note: All estimates are population weighted.

Another way of examining the enrollment gaps across income groups is presented in several graphs in Figure 9 that show non-parametric regressions of whether different subgroups of children aged 6 to 12 are currently enrolled in school against their household’s per-capita consumption. There is a clear rising relationship with household consumption though this is much more pronounced in rural than in urban areas. This is true for all groups, whether by gender or ethno-linguistic affiliation, although the urban-rural gap does narrow with higher consumption. The graphs for boys, girls, and Lao-Tai children show a pronounced convergence at higher levels of consumption. In contrast, the urban-rural enrollment gap remains large even at higher consumption levels for the “Other” non-Lao-Tai groups.

As we have already seen, the largest schooling gap is for poor girls. Figure 9 also brings out some strong geographical differences. The most striking difference between districts is in the low urban schooling evidenced for the poor in priority districts compared to non-priority

ones. By contrast, enrollment differences in rural areas are not so pronounced across the priority and non-priority districts.¹⁴ Finally, at all levels of consumption, schooling is much higher in the lowlands than in the highlands (Figure A1).

Figure 9: Enrollment and consumption per capita, ages 6 to 12 in 2002/3



Source: LECS3, 2002/3.

Note: Consumption per capita is deflated by a regional price index and expressed in real 2002/3 KIP/month.

¹⁴ Appendix Tables A4 to A7 provide further detail on primary and secondary enrollments across different geographical breakdowns and by quintiles.

Table 6 presents the other dimension of low primary school enrollments—the distribution across groups of children 10 to 18 who have never attended school (also see Tables A8 and A9). As we have seen, rural girls in the “Other” ethno-linguistic group are the ones least likely to attend school. Poverty accentuates the problem: 42 percent of rural non Lao-Tai females 10 to 18 from poor families have never attended school!

Table 6: Children aged 10 to 18 who have never attended school (%)

	Urban				Rural						Total
	Lao-Tai		Total		Lao-Tai		Other		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Total											
% never attended	1.8	2.0	1.9	2.6	3.9	7.3	17.9	36.7	8.8	18.1	10.8
Obs.	1049	655	1239	1209	2711	2694	2017	2199	4728	4893	12069
Non-Poor											
% never attended	0.9	1.6	1.1	1.9	2.4	5.3	14.5	30.9	5.6	12.4	6.9
Obs.	862	533	970	956	1979	1937	971	1064	2950	3001	7877
Poor											
% never attended	5.5	3.8	5.2	5.4	8.1	13.0	21.1	42.1	14.8	28.3	19.2
Obs.	1049	122	1239	1209	732	757	1046	1135	1778	1892	4192

Source: LECS3, 2002/3.

Note: Non Lao-Tai are not shown in urban areas due to the small number of observations. All estimates are population weighted.

Pre-primary school can play an important role in preparing children intellectually, psychologically and socially for entering primary school. But in Lao PDR few children ever attended pre-primary school, perhaps reflecting the high fees and low supply of those facilities (ADB 2000). Only 11 percent of all children aged 10 to 18 ever attended kindergarten (Table 7). The percentage is much higher for urban (24%) than for rural children (5%), and it is much higher for wealthier households. Almost 40 percent of urban children in the richest quintile spent time in pre-primary school versus 15 percent in the poorest urban quintile (Table A11). By contrast, an even lower percent of children (10%) from the wealthiest quintile ever participated in rural Lao PDR. There are also large differences across provinces with children in Vientiane the most likely to have some schooling experience prior to entering primary school (see Tables A10 and A11).

Table 7: Children aged 10 to 18 who ever attended pre-school (%)

	Urban				Rural						Total
	Lao-Tai		Total		Lao-Tai		Other		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Total											
% attended	26.7	24.5	25.8	23.8	7.1	7.1	1.5	1.8	5.3	5.6	10.7
Obs.	1030	655	1215	1175	2591	2479	1626	1330	4217	3809	10416
Non-Poor											
% attended	29.1	26.1	28.7	26.0	7.8	7.5	1.8	2.0	6.4	6.3	12.7
Obs.	853	533	959	937	1929	1838	808	694	2737	2532	7165
Poor											
% attended	15.5	16.5	14.3	14.4	4.8	5.7	1.3	1.6	3.1	3.9	5.5
Obs.	177	122	256	238	662	641	818	636	1480	1277	3251

Source: LECS3, 2002/3.

Note: Non Lao-Tai are not shown in urban areas due to the small number of observations. All estimates are population weighted.

Table 8: Net and gross lower secondary enrollment rates for children aged 12 to 15 by gender, urban/rural location, ethno-linguistic family and poor/non-poor status, Lao PDR 2002/3

	Urban				Rural				Total		Total
	Lao-Tai		Total		Lao-Tai		Other				
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Total											
Net enrollment rate	54.2	45.4	51.2	44.4	35.0	31.5	11.9	6.5	27.2	22.3	30.5
Gross enrollment rate	76.2	61.1	72.2	61.5	52.0	42.7	24.3	11.1	42.6	31.1	44.2
no. of observations	501	518	605	583	1323	1286	933	1033	2256	2319	5763
Non-Poor											
Net enrollment rate	60.0	48.2	57.2	47.4	39.5	37.0	15.5	10.3	33.6	29.4	37.5
Gross enrollment rate	84.9	64.3	81.0	64.5	57.4	49.7	32.7	15.8	51.3	40.1	53.5
no. of observations	401	424	459	456	980	908	435	503	1415	1411	3741
Poor											
Net enrollment rate	31.2	32.8	31.2	32.8	21.3	17.4	8.7	2.9	14.7	10.0	15.6
Gross enrollment rate	41.7	46.8	42.3	49.9	35.6	24.7	16.6	6.6	25.7	15.4	24.6
no. of observations	100	122	146	127	343	378	498	530	841	908	2022

Source: LECS3, 2002/3.

Note: Non Lao-Tai are not shown in urban areas due to the small number of observations. The denominator for the net and gross enrollment rates is the number of children aged 12 through 15. All estimates are population weighted.

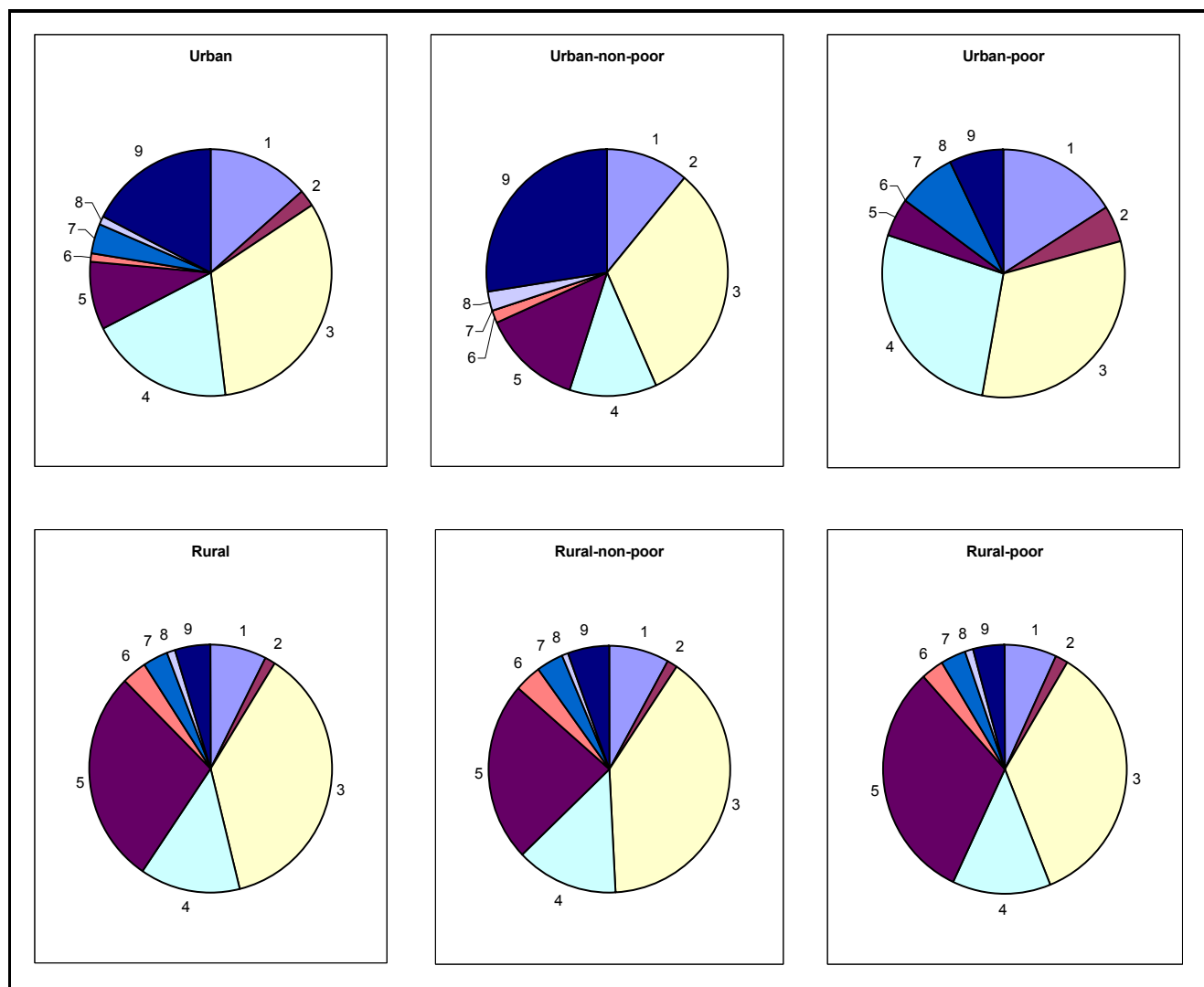
A severe drop-off in enrollments occurs between primary and secondary school. Overall net and gross enrollment rates at the lower secondary schooling level (officially the 12 to 15 age group) are 31 and 44 percent (Table 8). Once again, the familiar ethnic and gender differences emerge: The net enrollment rate ranges from a high of 54 percent for Lao-Tai urban boys to a low of 7 percent for “Other” ethno-linguistic group rural girls. The gross enrollment rate at 11 percent for the latter group does not offer much more hope. Bringing in the economic welfare dimension makes the picture even starker. For the poor, net secondary school enrollments range from an average of about 33 percent in urban areas to a low of 3 percent for rural “Other” girls.

There are several reasons why some of those in the 9 to 18 age group have never been to school (Figure 10 and Table A13). At the national level, nearly 40 percent who are not in school say this is because they are not interested;¹⁵ another 27 percent say that the school is too far; 14 percent say they have to work; and 8 percent say that they (or their parents) consider themselves (them) too young. There are striking differences in the relative importance of these reasons in urban and rural areas (Figure 10). For example, about one-third of children 9 to 18 not in school in urban areas say that they have no interest in attending school; 19 percent say that they have to work; 13 percent say that they are too young; and 9 percent say that the school is too far. By comparison, 37 percent of those in rural areas say they have no interest; 13 percent say that they have to work; 7 percent say that they are too young; and 28 percent say that the school is too far.

Some considerable differences also emerge in the reasons put forward when we look at the poor and non-poor separately. This is especially true in urban areas. For example, as one would expect, the urban poor are much more likely than the urban non-poor to say that they have to work (27% versus 12%) or that the cost of schooling is what keeps them from school (5% versus none). Illness is also much more common for the urban poor (8% versus none) while the urban non-poor are fond of ‘other’ as a key reason (27%) and much more likely to find that the school is too far (13% versus 5%).

¹⁵ Of course, the reason “not interested” is likely to reflect the internalization of some of the other potential reasons.

Figure 10: Reasons for never having attended school, ages 9 to 18, Lao PDR 2002/3 (%)



Source: LECS3, 2002/03

Note: the reasons are: 1=Too young; 2=Too expensive; 3=No interest; 4=Had to work; 5=School too far; 6=No teachers/supplies; 7=Illness; 8=Language; 9=Other.

For rural poor people, the distance to school is more often an issue (32% versus 24%); otherwise, differences in the reasons given across income groups are small. Interestingly, although linguistic variability is often noted in the literature as a deterrent to schooling especially of ethnic minorities, in Lao PDR this reason was rarely cited by households of either ethno-linguistic group (Table A13). Similarly, the direct cost of schooling (as distinct from the full opportunity cost) is rarely given as a reason for not attending school. Even urban poor people who mention it most often do so only in 5 percent of cases.

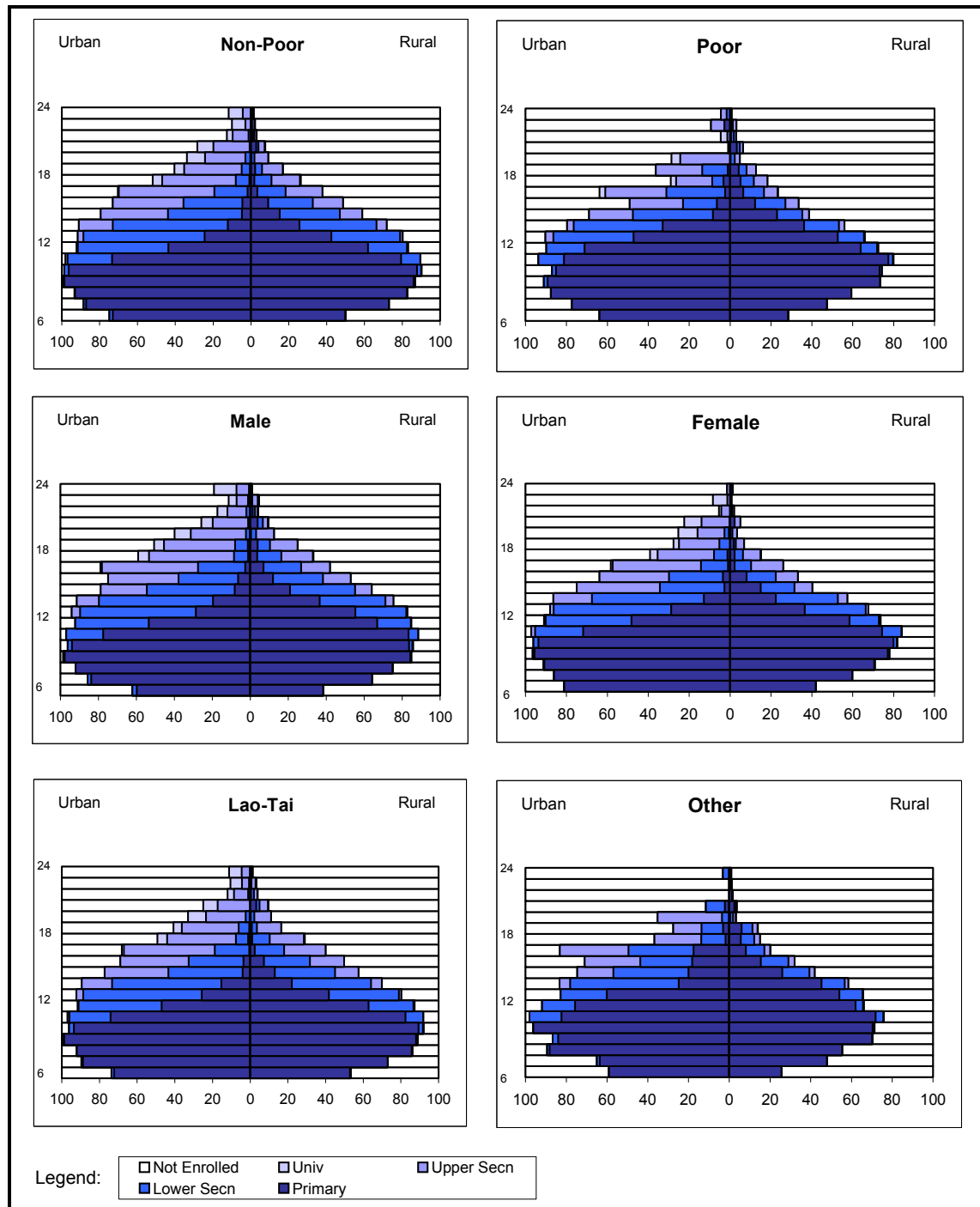
Age at entry

Figure 11 presents enrollment rates by age (6-24 years) and by school cycle. Overall, the graphs in Figure 11 reveal differential patterns among groups that have already been discussed above, but these graphs add another dimension: many children enter the primary cycle later than the prescribed age of entry. While children are expected to enter grade one at age six, it is only by age nine or ten that the maximum enrollment rate at the primary level is achieved; correspondingly, children remain in the primary cycle until their middle to late teens. The graphs also show that rural children enter school, if ever, later than do urban children, and correspondingly, a larger percentage of them—male or female, poor or non-poor, and Lao-Tai or not—are still at the primary level even in their late teens. The transition rate from primary to secondary school tends to be slower for children from poor households, particularly in rural areas.

The average age at which children start school has declined markedly over time, however. As indicated by the reported starting ages of those aged 9 to 18 in 2002/3, nearly 80 percent of those aged 10 entered school by age 8 as compared with just slightly more than 20 percent for those aged 18 (Figure 12).¹⁶ Table 9 corroborates this improvement over time. It compares the age at which children that are currently aged 12 and 16 entered primary school and indicates a clear reduction for all groups even over this short space of time. For example, poor rural 16 year old girls belonging to the “Other” ethno-linguistic group typically enter school at age 11. By contrast, their younger sisters, aged 12 in 2002/3, started school an average of 1 year and 4 months earlier, at 9.6 years old. Despite the progress, this group remains the one with the latest average start age.

¹⁶ LECS3 included a question asking respondents about their age of starting school, so this information is not a computed age of entry.

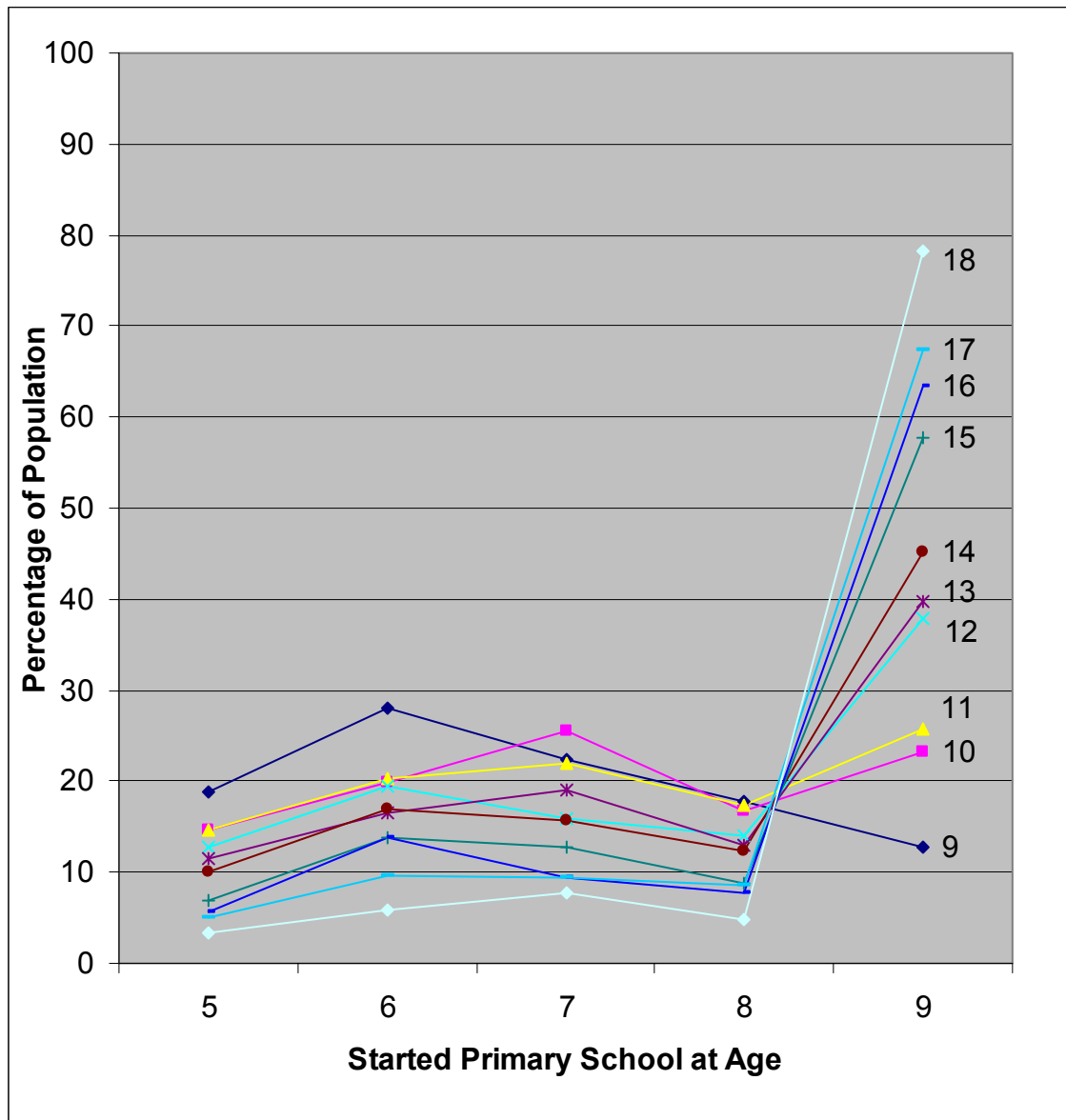
Figure 11: Enrollment by education level, for ages 6 to 24 in 2002/3



Source: LECS3, 2002/3.

Note: The vertical axis plots age (years) and the horizontal axis the percentage of those aged 6 to 24 enrolled. Completion rates for the non-Lao-Tai are skewed due to small sample size of urban non-Lao-Tai students.

Figure 12: Age when children aged 9 to 18 started primary school (%)



Source: LECS3, 2002/3.

Note: Each curve shows the percentage of a specific age group (as noted on the right hand side on the curves) who started school at different ages. So, for example, almost 80% of children who were 18 in 2002/3 started school at 9 or older.

Table 9: Age when children currently aged 12 and 16 started school, Lao PDR, 2002/3

	Urban				Rural						Total
	Lao-Tai		Total		Lao-Tai		Other		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Total											
Children aged:											
12	6.6	6.6	6.7	6.7	7.3	7.4	8.8	9.1	7.8	7.9	7.6
16	6.8	6.8	6.9	7.0	7.8	8.0	9.8	10.2	8.4	8.4	7.9
Non-Poor											
Children aged:											
12	6.4	6.5	6.6	6.6	7.0	7.2	8.5	8.7	7.4	7.6	7.3
16	6.8	6.8	6.9	6.9	7.6	8.0	9.4	9.4	8.0	8.2	7.6
Poor											
Children aged:											
12	6.9	7.1	7.0	7.0	7.9	7.8	9.1	9.6	8.5	8.5	8.2
16	6.2	7.0	7.1	7.2	8.8	8.0	10.2	11.0	9.4	9.1	8.9

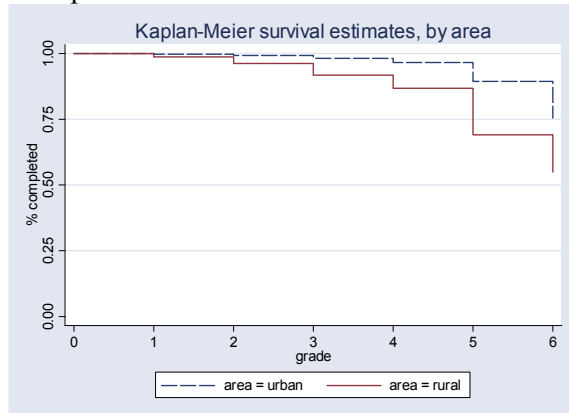
Source: LECS3, 2002/3

School continuation and completion

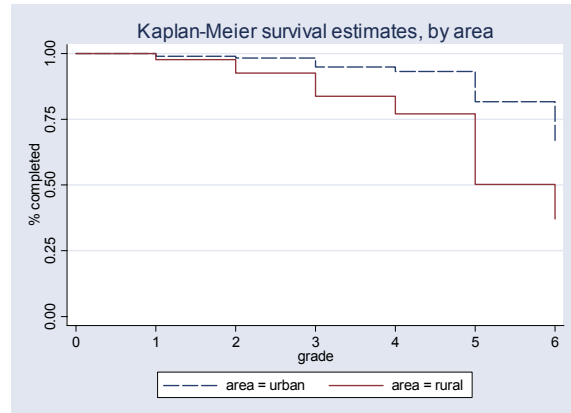
A pattern that emerges from Figure 11 is that a larger proportion of youths in urban than in rural areas continue to the lower and upper secondary cycles and beyond. How likely children are to stay in school with each passing grade determines their ultimate grade attainment and eventually whether they complete the basic school cycle and beyond. The Kaplan-Meier survival (or school continuation) curves show the probability of students surviving through the education system. Figure 13 shows survival through the primary school years for all youths aged 6 through 18 who are enrolled in school, while Figure 14 estimates continuation through to the end of the upper secondary level for the 18 to 24 age cohort. Since the highest grade completed for each student is, by definition, truncated but cannot be less than the current grade attended, the Kaplan-Meier method adjusts for this in estimating the probability of continuation at each grade (Table 10).

Figure 13: Kaplan-Meier primary school survival estimates for children aged 6-18, 2002/3

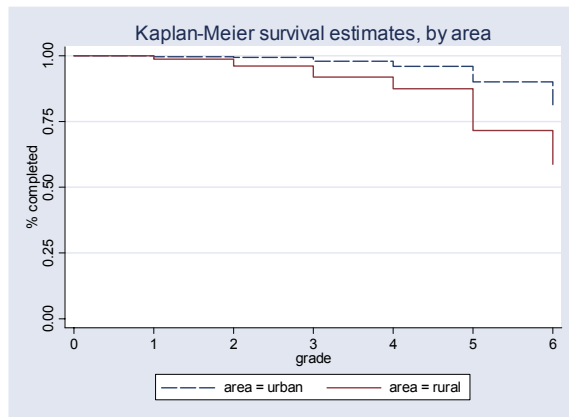
Non-poor:



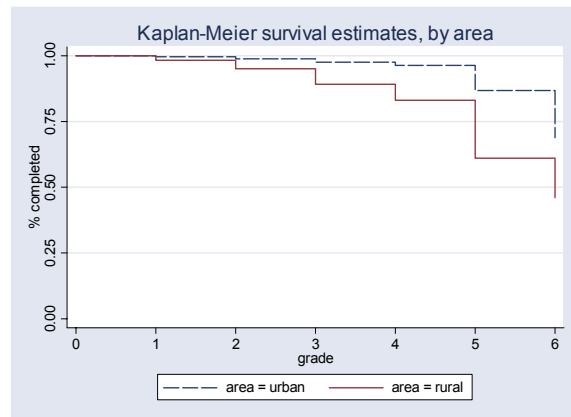
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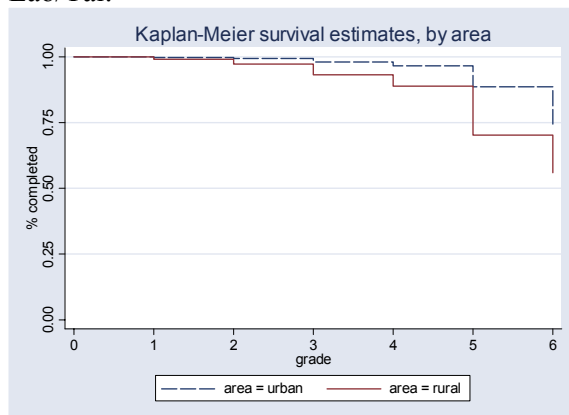
Male:



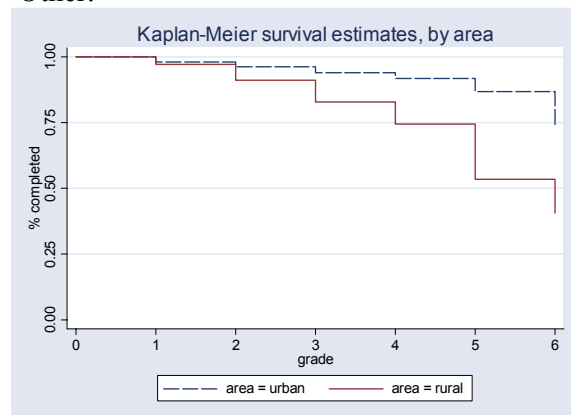
Female:



Lao/Tai:



Other:

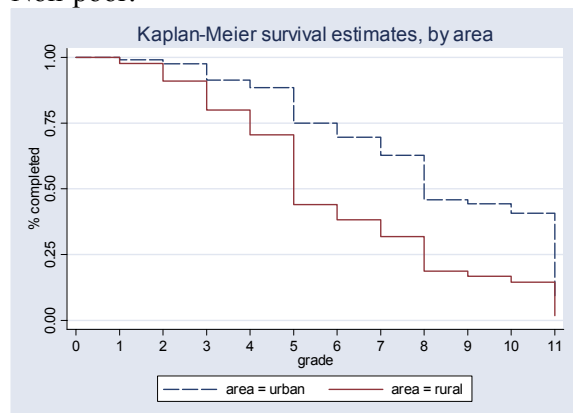


Source: LECS3, 2003.

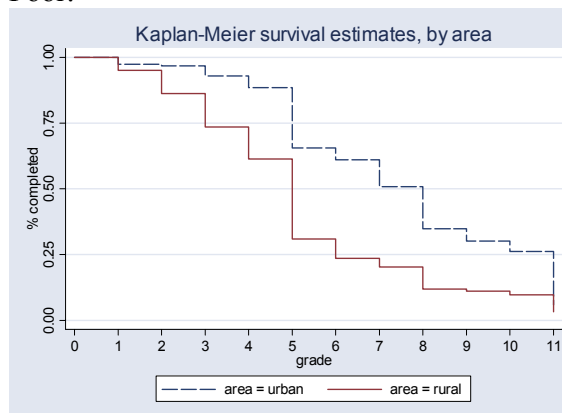
Note: The figure gives the probability of continuation through the primary school cycle by different sub-groups of children aged 6 to 18.

Figure 14: Kaplan Meier school survival estimates for children aged 18 to 24, 2002/3

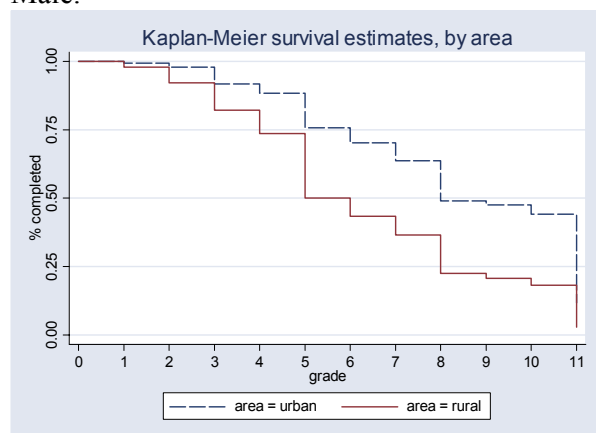
Non-poor:



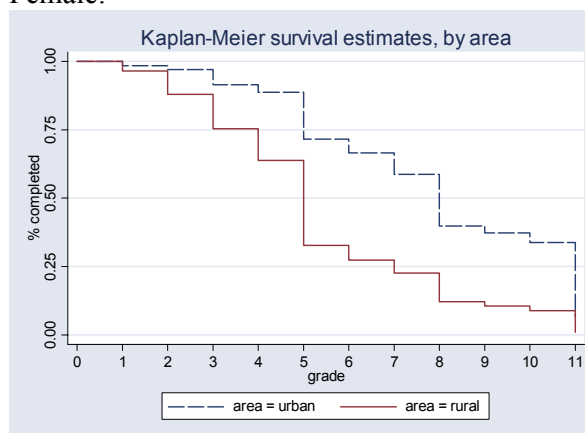
Poor:



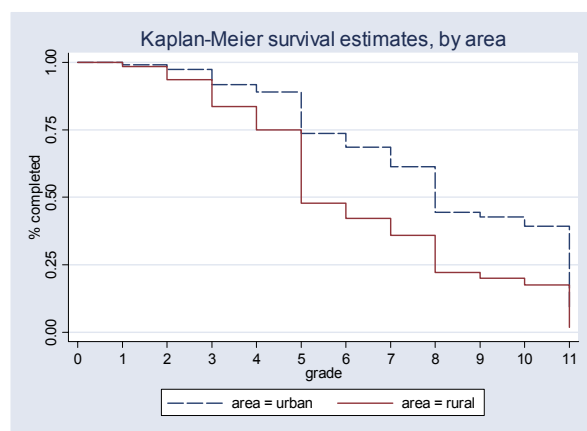
Male:



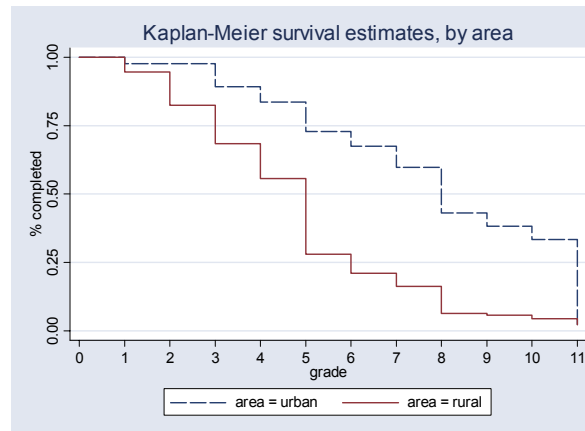
Female:



Lao/Tai:



Other:



Source: LECS3, 2003.

Note: The figure gives the probability of continuation through the entire school cycle by different sub-groups of children aged 18 to 24.

Table 10: Last grade completed by children currently aged 12 and 16, Lao PDR, 2002/3

	Urban				Rural						Total
	Lao-Tai		Total		Lao-Tai		Other		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Total											
Children aged:											
12	4.6	4.8	4.4	4.7	3.7	3.7	2.6	2.3	3.3	3.3	3.6
16	7.9	7.5	7.8	7.3	6.2	5.9	4.7	4.3	5.7	5.4	6.2
Non-Poor											
Children aged:											
12	4.8	4.9	4.6	4.8	3.9	3.8	2.8	2.5	3.6	3.5	3.9
16	7.8	7.5	7.7	7.5	6.5	6.0	5.1	4.4	6.2	5.7	6.5
Poor											
Children aged:											
12	4.2	4.2	4.0	4.1	3.2	3.5	2.4	2.1	2.8	2.9	3.1
16	8.0	7.2	7.9	6.4	5.3	5.3	4.3	4.2	4.8	4.8	5.2

Source: LECS3, 2002/3.

Overall, the curves demonstrate the noticeably sharper drop in probability of continuing in school at the end of each cycle, with this drop being larger at the end of the primary cycle than in later cycles (Figures 13 and 14). For example, in rural areas, around 70 percent of male students and less than 60 percent of female students are still in school at the end of grade 5. The curves also show a well-defined divergence in the survival rates of students in urban and rural areas at nearly all grades and a more pronounced drop at the end of the primary cycle for rural students. The probability of survival beyond the fifth grade is also lower for girls than for boys, for the poor than for the non-poor and for the “Other” than the Lao-Tai ethno-linguistic group in both urban and rural areas (Figure 13). Figure 14 demonstrates that children who survive through lower secondary school are highly likely to make it through the entire basic schooling cycle. A comparison with Figure 13 also hints at progress over time: post primary school drop off rates for the 18 to 24 age cohort are quite a bit higher than for the 6 to 18 age group.

Why is dropping out of school so pronounced at the end of the primary cycle? Table 11 presents the reasons given for those aged 12-24 who did not pursue their studies beyond fifth

grade. Thirty-one percent of 12-year-olds said that cost was the key reason, while 30 percent said they had no interest in continuing their studies. For older children, three reasons, not including cost, were most consistently put forward—namely, lack of interest, having to work, and distance to the school. A lack of teachers or supplies or language of instruction is rarely given as a reason for dropping out after primary school. The school being too far is more often cited in rural than urban areas (20% versus 7 %) as the key constraint, while work is consistently listed 35-40 percent of the time in both urban and rural areas as well as across quintiles (Table A14).

Table 11: Reasons by age for not continuing beyond primary school, population aged 12 to 24, Lao PDR 2002/3

Age (year)	Reason for not continuing after primary school *)								% of total age group not continuing
	1	2	3	4	5	6	7	8	
12	31	30	14	15	0	6	0	5	3
13	9	35	22	28	0	1	0	6	6
14	2	32	28	26	0	6	0	6	9
15	9	33	34	19	0	1	0	4	13
16	7	24	42	21	0	2	0	5	15
17	6	27	47	16	1	2	0	2	16
18	6	26	39	20	0	3	1	6	18
19	4	24	44	19	2	4	0	4	17
20	6	25	43	19	1	1	0	5	17
21	11	25	38	14	1	3	0	8	15
22	4	25	50	13	0	1	0	7	16
23	6	31	45	10	0	4	0	4	16
24	7	22	45	7	0	5	0	14	17

Source: LECS3, 2002/03.

Note : *) 1=Too expensive; 2=No interest; 3=Work; 4=School too far; 5=No teachers/supplies; 6=Illness; 7=Language; 8=Other.

Household education-related expenditures

Sending children to school entails costs which will deter some households from doing so. These costs include direct expenditures as well as foregone income from child labor. Here we focus on the direct costs. Nationally, 4 percent of household expenditures are devoted to education-related spending, conditional on having a child enrolled in school. This varies from 3 percent in rural areas to 7 percent in urban areas (Table A15). Table 12 presents education spending per primary and per lower secondary school student as reported by households in

2002/3 across different population sub-groups. A few observations can be made. First, expenditures per primary school student are always less than expenditures per secondary school student. However, the difference is much larger in rural areas where primary school expenditures are around 40 percent of secondary school spending than in urban areas where per-student outlays on primary education are typically 60 to 80 percent of those for secondary education.

Second, per-student expenditures for both schooling levels are lower in rural than in urban areas, with two exceptions: The amounts are only very slightly lower in rural areas among poor lower secondary students, and they are considerably lower in urban compared to rural areas for non-Lao-Tai lower secondary school students. Third, the poor spend less in absolute amounts than do the non-poor. And, finally, outlays per student from the “Other” ethno-linguistic family are less for primary school than for the Lao-Tai (the differences are significant in urban but not in rural areas), but more for secondary schooling in rural areas.¹⁷

Table 12 also presents the component shares of education spending going to tuition fees, PTA contributions, school uniforms, textbooks and other education materials, transportation, meals and lodging, and other expenses. Strikingly, uniforms account for the largest share of education-related outlays for both schooling levels, in both urban and rural areas and for both ethno-linguistic groups whether students are poor or non-poor. In rural areas, that share tends to be around 50 percent; in urban areas, it is 35 and 40 percent for the non-poor and poor, respectively. The second largest cost in rural areas is for textbooks and materials, with a share of 20-25 percent, followed by expenses on transportation, meals and lodging expenses, and other expenses. In urban areas, the non-poor Lao-Tai devote the second largest share to the category transportation, meals and lodging followed by other expenses and textbooks. In contrast to other expenditure items, tuition fees never account for more than 4.3 percent in rural areas (for poor “Other” secondary school students) and are usually lower, while they account for around 7 percent in urban Lao PDR. PTA fees represent only an additional 2-3 percent of school-related expenditures.

¹⁷ There are too few students in the ‘Other’ urban group to determine how much they expend for lower secondary school.

Table 12: Household spending on education (thousands of KIP/mth) and component shares by urban/rural location ethno linguistic family and poor/non poor status Lao PDR 2002/3

	Urban			Rural		
	Lao-Tai	Other	Total	Lao-Tai	Other	Total
Total						
Exp. per primary student	32.5	15.2	30.5	12.9	10.6	12.1
Share to tuition	7.2	6.6	7.1	2.1	3.5	2.6
Share to PTA fees	2.0	2.3	2.0	2.1	2.5	2.2
Share to uniforms	32.5	42.7	33.8	47.9	53.5	50.0
Share to textbooks & materials	15.5	24.3	16.6	21.5	24.8	22.7
Share to transportation / meals / boarding	22.8	6.5	20.8	11.5	5.2	9.2
Other expenses	20.0	17.6	19.7	14.9	10.6	13.3
Exp. per lower sec. student	43.5	22.0	41.8	30.0	31.8	30.3
Share to tuition	7.2	5.5	7.0	3.0	3.7	3.2
Share to PTA fees	1.9	2.4	1.9	1.9	2.2	2.0
Share to uniforms	34.2	47.5	35.4	43.8	47.9	44.6
Share to textbooks & materials	14.7	24.3	15.5	20.0	19.8	19.9
Share to transportation / meals / boarding	22.7	5.4	21.3	15.2	13.4	14.9
Other expenses	19.3	15.0	18.9	16.1	13.1	15.5
Non-Poor						
Exp. per primary student	35.6	18.2	34.1	14.3	12.3	13.8
Share to tuition	7.6	6.8	7.5	2.0	3.5	2.4
Share to PTA fees	1.9	1.4	1.9	2.1	2.6	2.3
Share to uniforms	31.0	42.6	32.1	47.0	51.0	48.2
Share to textbooks & materials	15.3	23.0	16.0	20.6	24.0	21.6
Share to transportation / meals / boarding	24.7	6.6	23.1	12.5	6.3	10.7
Other expenses	19.5	19.7	19.5	15.8	12.7	14.9
Exp. per lower sec. student	45.5	-	44.4	31.0	33.7	31.4
Share to tuition	7.2	-	7.1	3.1	3.5	3.1
Share to PTA fees	1.8	-	1.8	2.0	1.7	2.0
Share to uniforms	34.0	-	34.5	43.6	46.1	44.0
Share to textbooks & materials	14.6	-	15.1	19.4	20.1	19.5
Share to transportation / meals / boarding	23.9	-	22.8	15.6	14.6	15.4
Other expenses	18.6	-	18.6	16.4	14.0	16.0
Poor						
Exp. per primary student	18.9	11.6	17.1	8.9	8.7	8.8
Share to tuition	5.5	6.4	5.7	2.4	3.5	3.0
Share to PTA fees	2.4	3.4	2.7	1.9	2.4	2.1
Share to uniforms	38.7	42.9	39.8	50.4	56.3	53.4
Share to textbooks & materials	16.6	26.0	19.0	24.0	25.7	24.9
Share to transportation / meals / boarding	14.7	6.3	12.5	8.8	3.9	6.4
Other expenses	22.2	15.1	20.3	12.5	8.3	10.3
Exp. per lower sec. student	29.3	-	26.9	24.9	28.0	25.9
Share to tuition	6.8	-	6.7	2.7	4.3	3.2
Share to PTA fees	2.5	-	2.6	1.7	3.1	2.1
Share to uniforms	35.7	-	39.7	44.9	51.3	46.9
Share to textbooks & materials	15.6	-	17.6	22.9	19.2	21.8
Share to transportation / meals / boarding	15.2	-	12.8	13.3	10.9	12.6
Other expenses	24.2	-	20.6	14.5	11.2	13.5

Note: The numbers are calculated conditional on having one or more children enrolled in school. Expenditures are deflated by a regional price index and expressed in real thousands of 2002/3 KIP per month. Expenditures per lower secondary student for the non-Lao-Tai urban poor and non-poor are omitted due to small sample size.

This expenditure pattern suggests that, while school fees may still deter some students from attending school, the government has successfully reduced the burden of tuition fees and PTA fees on rural and urban students. However, household outlays on uniforms, textbooks and learning materials, and transportation remain substantial.

5. Supply factors

The availability of schools within a reasonable distance from the household has been shown to be an important determinant of whether a student goes to school (Figure 12). Besides availability, other supply factors are also expected to influence that decision and, according to educators, whether students learn or not. Studies have focused on the pupil-teacher ratio, educational attainment and work experience of teachers, the availability of textbooks and learning materials, and the physical condition of school buildings as indicators of school quality. Reviews of numerous studies on the impact of school inputs reveal neither a strong nor systematic relationship between observable school inputs and student performance (Hanushek 1995).¹⁸ One interpretation of this disappointing impact of school inputs on learning is that the multiple outputs of schools and some inputs are not easily measured. For example, while teachers' education and years of experience can be directly observed, it is much more difficult to observe the quality of teachers' work in the classroom (Levin 1995).

In this section, we examine the level of school inputs in Lao PDR. While we are not able to relate these school inputs to learning indicators, we posit that these observed indicators of school quality influence demand for schooling and thus affect school enrollment and completed years of schooling.

School infrastructure

Nationally, 84 percent of the population of Lao PDR lives in a village with a primary school (Table 13). This varies across populations in urban and rural areas and across populations from different ethno-linguistic groups. In urban areas, 84 percent of the Lao-Tai do so compared to only 70 percent of the non-Lao-Tai. The percentage of the population serviced by a primary

¹⁸ However, just over half the studies (55%) found teacher's educational attainment and experience to have significant positive effects on student achievement, and 65% found that school infrastructure did (Hanushek 1995).

school is higher in rural areas, though here too the disparities across groups favor the Lao-Tai (88% versus 80%). In both urban and rural areas, this measure of school supply does not necessarily mean that children residing in a village without a school do not have access to a primary school.

A far smaller percentage of the population has access to a lower secondary school—this percentage ranges from 31 percent of the non-poor urban Lao-Tai to only 3 percent of the poor rural non-Lao-Tai (Table 13). As expected, upper secondary schools are even scarcer with only 3 percent of the Lao-Tai and 1 percent of the non-Lao-Tai population having access nationally.

Table 13: Access to primary, lower and upper-secondary schools, Lao PDR 2002/3 (% of population)

	Urban		Rural		Total	
	Lao-Tai	Other	Lao-Tai	Other	Lao-Tai	Other
Total						
% Population living in a village with:						
Primary school	83.6	70.2	87.6	80.0	86.4	79.3
Lower secondary school	29.2	22.7	16.6	3.9	20.5	5.2
Upper secondary school	11.3	14.1	4.9	1.0	6.8	1.9
No. of observations	7,812	1,358	20,841	19,532	28,653	20,890
Non-poor						
% Population living in a village with:						
Primary school	82.4	80.5	88.0	79.1	86.1	79.2
Lower secondary school	30.6	26.6	18.4	4.7	22.6	6.4
Upper secondary school	11.8	18.2	6.4	2.0	8.3	3.2
No. of observations	6,505	762	14,589	9,362	21,094	10,124
Poor						
% Population living in a village with:						
Primary school	89.6	57.0	86.6	80.8	87.2	79.3
Lower secondary school	22.5	17.6	12.1	3.3	14.3	4.1
Upper secondary school	8.7	8.7	1.0	0.2	2.6	0.7
No. of observations	1,307	596	6,252	10,170	7,559	10,766

Source: LECS3, 2002/3.

Note: The table gives the % of the different population subgroups who live in villages with the school infrastructure.

Table 14: Primary schools in Lao PDR, 1989 to 2004

	1989/90			1995/6			2000/1			2004/5		
	Schools	Schools /10,000 pop	Students /teacher	Schools	Schools /10,000 pop	Student /teacher	Schools	Schools /10,000 pop	Students /teacher	Schools	Schools /10,000 pop	Students /teacher
Vientiane Municipality	365	7.9	33.9	449	8.4	33.7	462	7.7	31.8	476	7.1	28.6
Phongsaly	277	19.6	25.2	259	16.9	27.3	388	22.3	24.1	501	25.7	25.4
Luangnamtha	155	13.0	27.7	202	17.6	30.0	283	21.6	24.1	340	23.3	31.2
Oudomxay	388	13.7	28.6	432	20.5	30.8	490	20.4	31.9	470	17.5	52.3
Bokeo	112	17.5	29.1	149	13.0	36.0	230	17.7	29.2	261	18.0	31.5
Luangprabang	908	26.9	26.4	892	24.3	30.0	719	17.3	31.0	745	16.0	36.4
Huaphanh	704	32.0	21.2	797	32.3	26.8	710	25.4	29.0	688	22.1	34.3
Xayabury	337	18.2	31.2	468	16.0	31.1	459	13.8	29.1	440	11.8	27.5
Xiengkhouang	310	17.1	31.4	411	20.4	31.5	404	17.6	32.3	410	15.9	33.0
Vientiane	456	15.0	23.6	423	14.7	31.2	472	14.4	27.6	468	12.2	26.8
Borikhamxay	278	19.4	29.1	306	18.5	33.0	281	15.0	35.7	320	15.3	37.6
Khammouane	376	15.3	33.2	450	16.4	30.1	568	18.3	32.2	598	17.2	32.3
Savannakhet	997	11.9	29.9	1,056	15.6	28.9	1,099	14.3	29.3	1,144	13.3	32.1
Saravane	510	22.7	26.1	405	15.7	35.2	432	14.8	37.5	504	15.4	41.2
Xekong	12	2.1	27.5	77	12.0	33.5	155	21.2	27.3	184	22.4	33.3
Champasack	716	15.8	28.0	750	14.8	28.7	757	13.2	30.1	765	12.0	31.1
Attapeu	131	16.6	30.8	186	21.1	28.9	181	18.1	25.8	187	16.8	30.3
Special region												
Xaysomboun	--	--	--	77	14.3	28.3	65	10.3	26.5	72	14.1	28.4
Total	6,435	15.5	28.2	7,789	16.9	30.6	8,155	15.6	30.1	8,573	14.7	32.3

Source: Ministry of Education: "Annual Bulletin" for 1995-96, year 1989-90 education annual report and 2000-05 province education office reports. National Statistical Center: Committee for Planning and Cooperation, "Lao PDR Population 2003" (2004).

Note: The figures given for Huaphanh in 1989/90 are actually for 1991/92. Population denominators are average midyear projections for 1990, 1995, 2000 and 2004, based on the 1995 census.

Table 15: Lower secondary schools in Lao PDR, 1989 to 2004

	1989/90		1995/6		2000/1		2004/5	
	Schools	Schools /10,000 pop	Schools	Schools /10,000 pop	Schools	Schools /10,000 pop	Schools	Schools /10,000 pop
Vientiane Municipality	53	1.1	81	1.5	88	1.5	105	1.6
Phongsaly	14	1.0	12	0.8	15	0.9	20	1.0
Luangnamtha	5	0.4	11	1.0	17	1.3	24	1.6
Oudomxay	16	0.6	14	0.7	21	0.9	31	1.2
Bokeo	11	1.7	16	1.4	19	1.5	26	1.8
Luangprabang	43	1.3	37	1.0	42	1.0	47	1.0
Huaphanh	36	1.6	43	1.7	47	1.7	60	1.9
Xayabury	39	2.1	41	1.4	49	1.5	61	1.6
Xiengkhouang	30	1.7	36	1.8	38	1.7	44	1.7
Vientiane	66	2.2	63	2.2	76	2.3	80	2.1
Borikhamxay	25	1.7	28	1.7	37	2.0	43	2.1
Khammouane	45	1.8	55	2.0	55	1.8	69	2.0
Savannakhet	157	1.9	139	2.1	144	1.9	144	1.7
Saravane	30	1.3	18	0.7	26	0.9	33	1.0
Xekong	5	0.9	5	0.8	8	1.1	8	1.0
Champasack	98	2.2	91	1.8	99	1.7	105	1.6
Attapeu	9	1.1	14	1.6	13	1.3	15	1.4
Special region Xaysomboun	--	--	9	1.7	6	1.0	10	2.0
Total	698	1.7	713	1.5	800	1.5	925	1.6

Source: Ministry of Education: "Annual Bulletin" for 1995-96, year 1989-90 education annual report and 2000-05 province education office reports. National Statistical Center, Committee for Planning and Cooperation, "Lao PDR Population 2003" (2004).

Note: Population denominators are average midyear projections for 1990, 1995, 2000 and 2004 based on the 1995 census. Starting in 2000, data for secondary schools is divided into the number of lower, upper and complete secondary schools. The table reports the total of lower plus complete secondary schools for 2000/1 and 2004/5. Prior to 2000, it is not clear how complete secondary schools were classified.

Tables 14 and 15 provide alternative statistics on the availability of primary and secondary schools across provinces from 1989 to 2004 based on school administrative data. The number of schools alone is not easy to interpret as school aged populations, and hence need, will vary widely across provinces. As we do not have data on the school age populations by province and year, we use provincial level population to provide a common denominator instead. This is not ideal as demographic age profiles may differ across provinces. There were 15 primary schools per 10,000 population nationally in 2004, but this figure varies considerably across provinces, as well as years (Table 14). The total number of primary schools increased from 6,435 to 8,573 over the period considered. Although net increases are not uniformly found for all provinces, that was the general trend. On the other hand, the school to population ratios decline as often as they increase. In Table 15, we see that the number of lower secondary schools per province typically increased between 1989 and 2004.

The spider graphs in Figure 15 portray the infrastructure characteristics of the primary schools to which the population in the LECS3 sample villages have access. Specifically, they indicate the percentage of different population subgroups that live in villages with a primary school with each attribute. Some of these attributes, such as the share of classrooms with a blackboard and the presence of a school library, are directly related to pedagogical processes, while others may determine instruction and learning mainly by making the school more comfortable for students (e.g., availability of drinking water, a toilet for students) and for school personnel (e.g., availability of a principal's office, teachers' room). Figure 15 places all of the former on the left hand side and the latter on the right hand side of the figure.

In Lao PDR, urban populations have access to schools that are clearly far better equipped than do rural populations. The difference is much smaller with respect to classrooms with blackboards and functioning roofs, but much greater with respect to whether the school has electricity or rooms for the principal and for teachers. On average, nearly the entire population has access to schools that have classrooms with blackboards and about three-fourths to schools with leak-proof roofs. Almost one-half of the urban population has access to schools with electricity, whereas this is the case for less than one-tenth of rural inhabitants. Comparing access to school infrastructure by urban and rural populations in priority and non-priority districts reveals that it is worse in priority districts, although not overwhelmingly so.

Figure 15: Access to primary school infrastructure characteristics, 2002/3 (% of population)

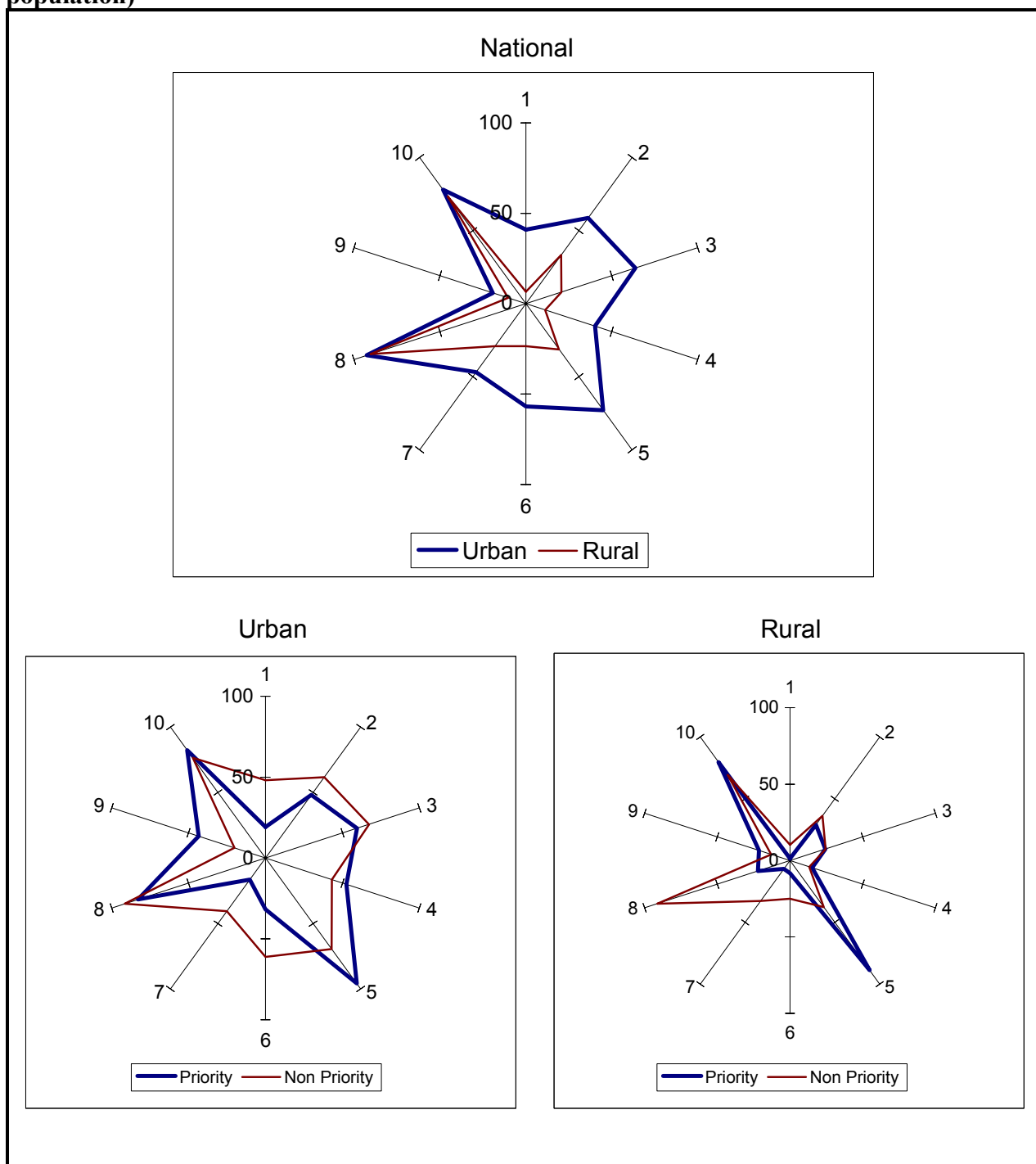
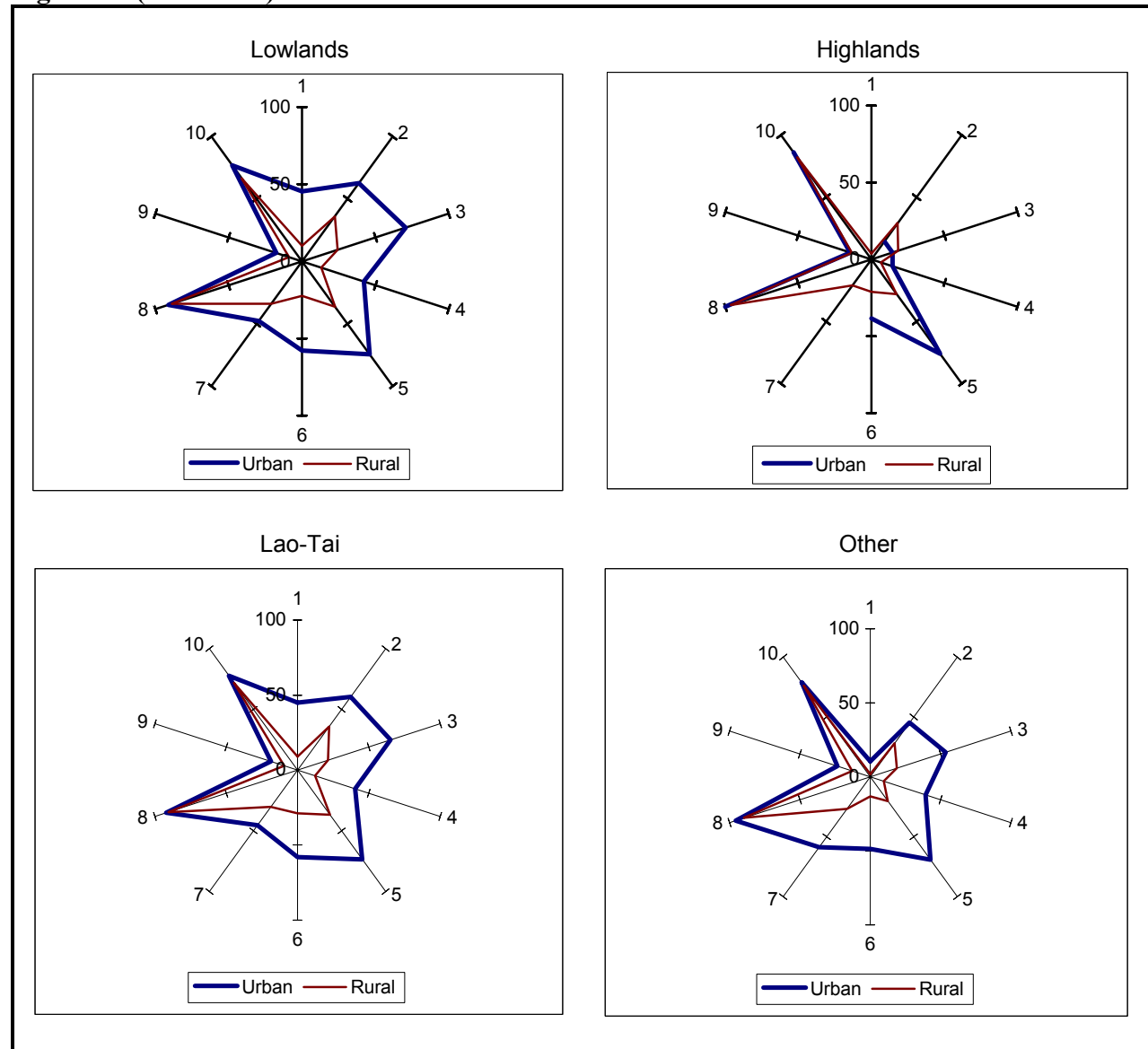


Figure 15 (continued)



Source: LECS3, 2002/3.

Note: The graphs present the percentage of the population in each subgroup by whether they live in a village with a primary school with the following characteristics: 1=Electricity; 2=Drinking water; 3=Student toilet; 4=Telephone; 5=Principal's room; 6=Teacher's room; 7=Share of permanent classroom; 8=Share of classrooms with blackboard; 9=Library; 10=Share of classrooms without leaky roof.

Table 16: Access to primary school characteristics by ethno-linguistic and urban-rural population groups, Lao PDR 2002/3

	Urban		Rural		Total	
	Lao-Tai	Other	Lao-Tai	Other	Lao-Tai	Other
School:						
Complete primary school (%)	8.8	10.7	8.7	4.3	8.7	4.7
Multi grade (%)	8.3	10.8	44.8	62.1	34.3	58.2
Pupil to teacher ratio (ratio)	30.6	32.0	29.9	31.8	30.1	31.8
Teachers:						
Male (%)	27.5	26.0	65.6	76.7	54.8	72.5
Lao (%)	93.0	46.6	78.9	29.5	82.9	30.9
Schooling (years)	10.1	9.9	10.0	9.3	10.0	9.3
Experience (years)	14.8	11.7	13.5	9.1	13.9	9.3
Principal:						
Male (%)	57.6	58.1	86.7	83.7	78.2	81.8
Lao (%)	89.3	46.1	79.5	31.4	82.4	32.6
Schooling (years)	10.8	10.8	9.9	9.4	10.2	9.5
Experience (years)	14.2	9.2	11.4	5.9	12.2	6.1
PTA:						
School has PTA (%)	87.8	75.9	72.9	55.3	77.2	56.9
Parents participating (%)	74.1	69.4	78.6	82.4	77.1	81.1
Fees are compulsory for:						
Tuition (%)	76.7	50.9	45.7	44.7	54.7	45.2
Sports (%)	28.5	30.2	19.4	22.7	22.0	23.3
Examination (%)	70.4	45.7	52.3	37.8	57.6	38.4
Books (%)	56.4	55.2	40.9	42.7	45.4	43.7
Facilities:						
Electricity (%)	54.5	14.1	9.5	1.9	22.5	2.9
Drinking water (%)	68.9	41.7	34.9	26.7	44.7	27.9
Student toilet (%)	71.4	37.6	22.7	14.0	36.7	15.8
Library (%)	21.6	16.9	8.6	9.7	12.4	10.2
Phone line (%)	44.2	25.6	12.9	7.0	21.9	8.4
Principal's room (%)	74.2	65.3	34.2	15.7	45.7	19.4
Teachers' room (%)	62.4	38.7	26.3	11.7	36.7	13.7
Classrooms:						
Permanent (%)	41.7	52.8	28.2	23.9	32.0	26.3
With blackboard (%)	92.3	95.8	88.0	90.2	89.2	90.6
Without leaky roof (%)	76.3	72.1	71.4	76.7	72.8	76.4
Each student has desk (%)	95.9	89.2	94.5	84.7	94.9	85.0
Distance to closest:						
District education bureau (km)	16.2	48.4	21.0	29.9	19.6	31.3
Paved road (km)	7.1	44.4	27.5	42.9	21.6	43.0
Lower secondary school (km)	6.0	21.6	7.9	20.5	7.3	20.6
Trade store/Market (km)	10.7	29.7	18.4	24.5	16.2	24.9
Bank (km)	10.0	21.1	31.7	46.5	25.4	44.6
Public transportation (km)	6.5	38.8	14.3	27.6	12.1	28.5
Provincial capital (km)	26.5	29.7	78.1	94.7	63.2	89.8

Source: LECS3, 2002/03, School survey 2002/3.

Note: The table presents the mean school characteristics for each subgroup as obtained by linking the school data to the household level data, according to the primary school available in the village of residence. For example, 8.8% of the urban Lao-Tai live in a village with a complete primary school.

Much larger differences are revealed when the sample is divided according to lowland or highland location. Except for blackboards, non-leaky roofs, and a principal's room, children in the highlands are more likely to have schools with poor infrastructure compared to children in the lowlands. In addition, urban-rural disparities are more pronounced in the lowlands than in the highlands. Lastly, comparing ethno-linguistic groups, a larger proportion of the urban Lao-Tai than the non-Lao-Tai have access to good facilities; the same is noted for rural populations.

These pronounced disparities can also be seen in Table 16 which presents mean school characteristics for various population subgroups, as obtained by linking school data with household data according to the school in each household's village of residence—and in Table A16 which presents the same information by national population quintiles. The latter indicates that facilities exist and are better in schools accessible to children from better-off households, whether in an urban or rural area. For example, while only 5 percent of those in the poorest rural quintile have access to schools with electricity, 12 percent of those in the top quintile do. In urban areas, the percentages range from 34 percent for the bottom to 57 percent for the richest quintile.

Teachers

One issue that has been discussed in past reviews is the unequal deployment of teachers among provinces and individual schools in Lao PDR, resulting in an oversupply of teachers in some schools and severe undersupply in others (ADB 2000). This deployment issue is partly a result of a quota system that requires newly trained teachers to return to their home district after training, thus restricting mobility and the capacity of the school system to balance teacher supply. The average pupil-teacher ratio for primary schools nationally is around 30 (Table 16). Although this ratio is slightly larger for urban than rural populations, as well as for the non-Lao-Tai than the Lao-Tai, the differences are not large. For example, it is 30.1 in the schools accessible to the Lao-Tai overall and 31.8 in those available to the non-Lao-Tai. Across quintiles, the ratio declines from 32 to 29 in urban areas and from 32 to 28, but again the differences are relatively small. In fact, this pattern is a reflection of the official government policy that allocates an additional teacher to a school when it enrolls another 33 students.

Table 14 addresses this issue from the provincial point of view rather than the school's. It shows the average student to teacher ratio in each province for various years. The overall average has increased from 28 to 32, but there is great variance across provinces, ranging from a low of 25 to a high of 52. Over time, within a province, the ratio has more often increased than declined. This presumably reflects the inadequacy of teacher supply increases in the face of large school enrollment increases.

Balancing teacher supply is not just about getting the numbers right. The quality of schools depends on who the teachers are and how well prepared they are to teach, and so the distribution of teacher characteristics matters also. In urban areas, two-thirds of teachers are women; the opposite is true in rural areas, where teaching probably represents a coveted opportunity for wage employment for educated men (Table 16). Lao-Tai children are taught predominantly by Lao-Tai teachers (90 percent in urban areas and 80 percent in rural areas), while a much smaller proportion of children of other ethno-linguistic groups are. This pattern suggests that schools tend to rely on local teachers, especially in rural areas. This has pros and cons: (i) Because local teachers are more likely to stay on, teacher attrition is going to be less of a problem; (ii) because local teachers know the local language and customs, they are likely to be better able to communicate with students and parents; (iii) but because local teachers in non-Lao-Tai areas may themselves have limited facility in the majority language, they may not be adequately effective in teaching their students the national curriculum.

The educational attainment and experience of the average teacher are highest in urban areas for Lao-Tai students and lowest in rural areas for non-Lao-Tai students (Table 16). On average, teachers have 10 years of schooling and about 15 years of experience in schools accessible to Lao-Tai students in urban areas; at the other end of the spectrum, teachers have, on average, nine years each of schooling and experience in schools accessible to non-Lao-Tai children in rural areas. The latter may well reflect the more recent expansion of schools in areas where the rural non-Lao Tai live. The differences in teacher education are not large and may make no difference to their instructional skills; however, the experience gap of six years is substantial and may indeed result in poorer performance by teachers, but we have no direct evidence of impacts on student learning.

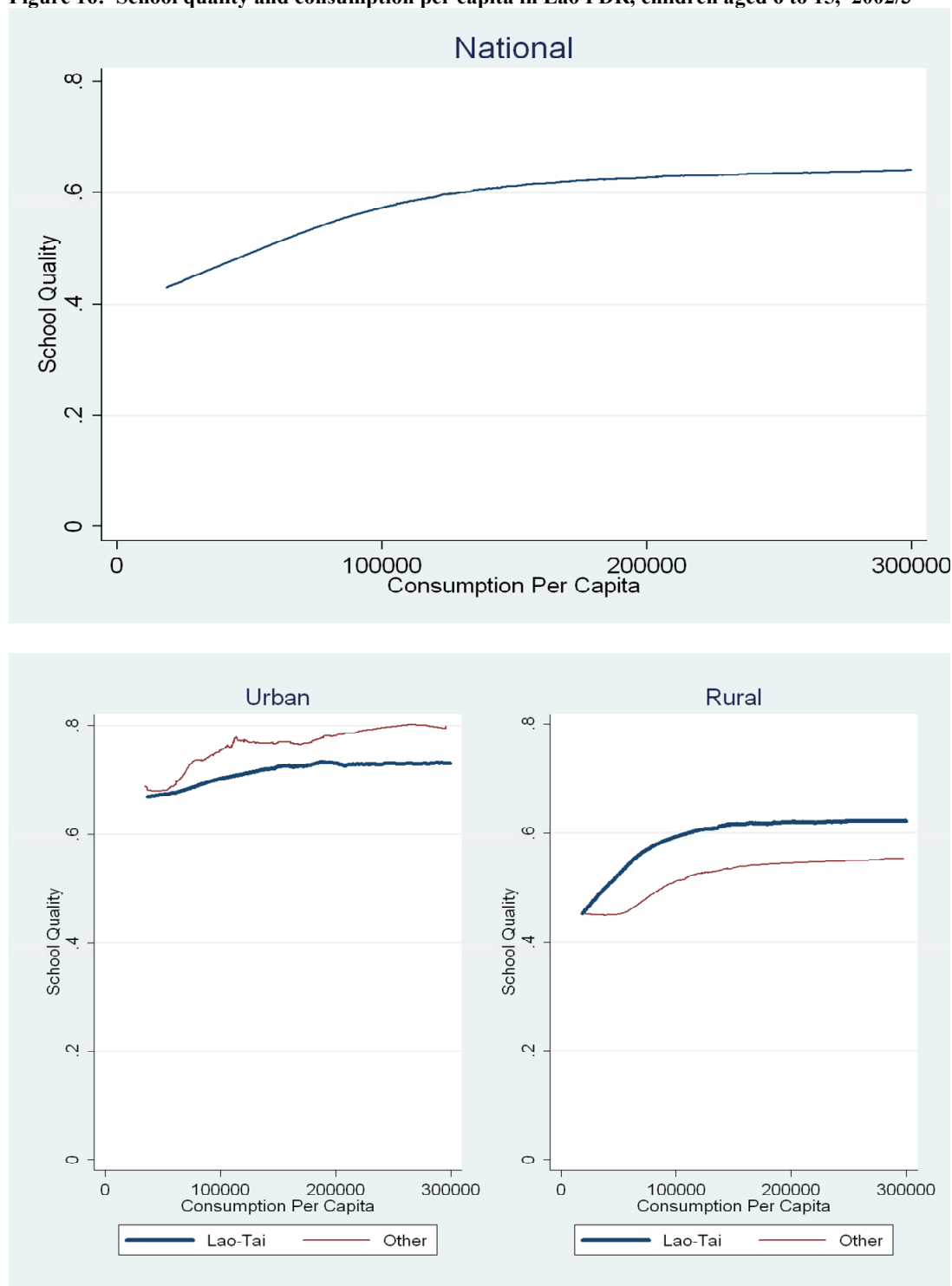
The quality of schools depends also on the ability of principals to supervise teachers, as well as to manage school operations or to raise supplementary funds. The ethno-linguistic distribution of principals is nearly identical to those of teachers, and they are not more highly educated than teachers, on average. But there are differences too: overall, a majority of the population lives in villages where the school principal is male, but this is more often the case for rural than for urban populations; and, on average, principals have fewer years of experience as principals than do teachers as teachers.

School quality and living standards

As noted, Table A16 shows how school characteristics vary for children from different expenditure quintiles. However, these data and their patterns are not easy to summarize. In the next section, we construct and discuss a school quality index based on a regression that explains enrollments which can help to summarize the relationship between overall school quality and household economic welfare. Figure 16 graphs the created school quality index against consumption using non-parametric regressions. Table 17 shows the quality indices for urban/rural, ethno-linguistic, poor/non-poor groups.

Overall school quality clearly rises with the living standards of households. The actual index varies widely, ranging from 0.17 to 1.0, with a mean of 0.60. The rural non-Lao-Tai poor face the lowest quality. Indeed, school quality is lower in rural than in urban areas for all consumption levels. Quality rises quite steeply for awhile leveling off for households with consumption levels above the rural mean of 140,000 Kips/per capita. The living standards gradient is less pronounced in urban than in rural Lao PDR, though it is still found in urban areas as reflected in a range of the conditional mean index from around 0.65 to a high of 0.80. Except for the very poorest among them, non-Lao-Tai ethno-linguistic groups tend to face higher school quality than do the Lao-Tai in urban areas, the reverse of what is found for rural areas.

Figure 16: School quality and consumption per capita in Lao PDR, children aged 6 to 15, 2002/3



Source: LECS3, 2002/3.

Note: Consumption per capita is deflated by a regional price index and expressed in real 2002/3 KIP per month. School quality is given by an index that is calculated from the coefficients on school characteristics in a regression explaining enrollment, and normalized to be between 0 and 1.

Table 17: Primary school quality indices by urban-rural location and ethno-linguistic family, Lao PDR 2002/3

	Urban			Rural			Total
	Lao-tai	Other	Total	Lao-tai	Other	Total	
Non-Poor	0.72	0.75	0.72	0.62	0.54	0.60	0.63
Poor	0.67	0.76	0.69	0.57	0.47	0.52	0.54
Total	0.71	0.75	0.71	0.60	0.50	0.57	0.60

Source: LECS3, 2002/3.

Note: School quality is given by an index that is calculated from the coefficients on school characteristics in a regression explaining enrollment, and normalized to be between 0 and 1.

6. Explaining school enrollment and attainment

What explains school enrollment differences among children? So far the paper has presented many descriptive tables and figures that identify various factors that appear to be highly positively or negatively correlated with whether children attend school. But such descriptive statistics do not isolate the effect of one variable from that of others and so may confound the effects of many factors. For example, we have seen that rural children are less likely to go to school. But, is it rural location *per se* that explains lower school enrollments or the high concentration of another correlate, the high incidence of non-Lao-Tai households in rural areas? Or is it the generally lower living standards of households in rural areas, or low levels of parents' own prior schooling? In this section we use multivariate regression analysis to try to disentangle the impacts of these multiple factors.

We start by examining a set of factors that are expected to influence whether a child attends school (Table 18). These variables include the characteristics of children—e.g., age, gender, whether the child is first or second born, and whether the child is disabled. Household-level variables include per-capita consumption,¹⁹ urban-rural residence by province, household size, gender and age composition of household members, ethnic affiliation, whether the household head is male or female, the head's age, and the education level of the head and head's spouse.²⁰ We control also for village-level variables such as one indicating location in the

¹⁹ We tried including a squared term as well, but found it to be insignificant.

²⁰ When a child is not the offspring of the head of household or head's spouse, the survey does not provide information on the parents of the child including their age or education. Furthermore, it is then impossible to know the child's birth order. Instead, we use the head's and head's spouse's years of education and age. A dummy variable for missing birth order, which also captures whether the child's parents are the head or spouse of head, is also entered. School-aged children in our sample are not the children of the head and/or spouse of head in about 10

highlands, whether the village is in a priority one or two district, and the mean walking time to the primary school over all households residing in the village. Many past studies on other countries have found that similar factors determine school enrollment and schooling attainment.²¹

To this basic model of education enrollment we have added school-level variables to estimate the relative effects of the variation in school supply and characteristics across villages. These variables pertain to the location of the school in terms of its distance to the closest city, paved road, and lower secondary school, its physical condition and available facilities, the characteristics of its teachers and principal, and whether fees are charged for tuition and exams. Few past studies have had access to data on both the family and community background of children and the characteristics of the schools available to or attended by them. Those that have had the fortune of having both sets of factors have found that family background effects tend to dominate the school effects (Levin 1995; Glewwe 2002). However, this may be due in part to significant measurement problems (e.g., using distance to school to measure access to school or using the condition of school infrastructure to measure the quality of classroom instruction). By relying on blunt measures of school access and quality, the observed variation across schools may well be much more limited than the actual variation. In terms of specific school variables, past studies have found that distance to school deters enrollment (for example, see Anderson, King and Wang, 2002, for Malaysia), tuition fees reduce enrollment (Behrman and Knowles, 1999), and having more educated teachers increases enrollment (World Bank 2005, for Cambodia).

percent of cases, indicating that these children live in non-nuclear households. The specific measures used for the variables are defined in Table 18a.

²¹ For East and Southeast Asian countries, recent relevant studies include: Anderson, King and Wang (2002) for Malaysia; World Bank (2005) for Cambodia; Baulch et al. (2004) and Behrman and Knowles (1999) for Vietnam.

Table 18a: Variable definitions and descriptive statistics, national, urban and rural samples of children aged 6 through 15

		National		Urban		Rural	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
A. Child/Household Characteristics:							
enroll	Child is enrolled in school	0.73	0.44	0.88	0.33	0.69	0.46
rpce	Household per capita consumption (thousand of 2002/3 Kips/mth)	151.16	121.79	194.64	170.61	139.55	101.88
lrpce	Log of household per capita consumption	11.76	0.53	11.98	0.58	11.70	0.51
lhhsiz	Log household size	1.92	0.32	1.84	0.31	1.94	0.32
age6	Child is 6	0.10	0.30	0.07	0.25	0.11	0.31
age7	Child is 7	0.10	0.30	0.09	0.28	0.10	0.30
age8	Child is 8	0.11	0.31	0.10	0.29	0.12	0.32
age911	Child is aged 9, 10 or 11	0.29	0.45	0.28	0.45	0.30	0.46
age12	Child is 12	0.11	0.32	0.12	0.32	0.11	0.32
age13	Child is 13	0.10	0.30	0.11	0.32	0.09	0.29
age14+	Child is 14 or 15	0.19	0.39	0.24	0.43	0.17	0.38
smadlt	Household share of male adults 17 and older	0.22	0.10	0.25	0.11	0.22	0.09
sfadlt	Household share of female adults 17 and older	0.23	0.10	0.25	0.10	0.23	0.09
sm616	Household share of males aged 6 to 16	0.22	0.15	0.23	0.16	0.22	0.15
sf616	Household share of females aged 6 to 16	0.21	0.14	0.20	0.15	0.21	0.14
sm06	Household share of boys aged 0 to 6	0.06	0.09	0.04	0.07	0.07	0.09
sf06	Household share of girls aged 0 to 6	0.06	0.09	0.03	0.07	0.06	0.09
c1or2	Child is first or second born	0.45	0.50	0.45	0.50	0.45	0.50
bordmis	Birth order is missing	0.10	0.30	0.10	0.30	0.10	0.30
female	Child is female	0.50	0.50	0.48	0.50	0.50	0.50
eth1	Child is from the Lao-Tai ethno-linguistic family	0.67	0.47	0.88	0.32	0.61	0.49
eth2	Child is from the Mon-khmer ethno-linguistic family	0.21	0.40	0.05	0.22	0.25	0.43
eth3	Child is from the Chine-Tibet ethno-linguistic family	0.03	0.18	0.02	0.16	0.04	0.19
eth4	Child is from the Hmong-Iu Mien ethno-linguistic family	0.09	0.28	0.04	0.19	0.10	0.30
eth5	Child is from the "Other" ethno-linguistic family	0.01	0.10	0.00	0.04	0.01	0.11
malehead	Household head is male	0.97	0.18	0.94	0.24	0.97	0.16
headage	Age of household head	44.08	10.36	45.41	10.09	43.72	10.40
disabled	Child is disabled	0.01	0.11	0.01	0.10	0.01	0.11
hdspmsch	Male head or spouse's years of schooling	4.67	3.61	6.83	4.04	4.11	3.26
hdspfsch	Female head or spouse's years of schooling	2.90	3.10	4.77	3.60	2.40	2.74

		National		Urban		Rural	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
B. School Characteristics:							
elec_yn	School has electricity	0.14	0.34	0.44	0.50	0.06	0.24
compmul	School is complete & not multi-grade	0.20	0.40	0.32	0.47	0.17	0.38
ncompmul	School is not complete & multi-grade	0.37	0.48	0.09	0.28	0.44	0.50
ncomnmul	School is not complete & not multi-grade	0.34	0.47	0.52	0.50	0.29	0.46
eachdesk	Each student has desk	0.91	0.28	0.95	0.23	0.91	0.29
sh_wleaks	Share of leaky classrooms	0.27	0.36	0.25	0.31	0.27	0.37
tc_shmale	Share of male teachers	0.61	0.38	0.28	0.27	0.70	0.36
tc_shlao	Share of Lao teachers	0.66	0.44	0.86	0.30	0.61	0.45
tc_mschlyr	Teachers' mean years of schooling	9.83	1.53	10.14	0.96	9.75	1.63
pr_yn	School has an official principal	0.60	0.49	0.94	0.24	0.51	0.50
pr_male	Principal is male interacted with pr_yn	0.48	0.50	0.56	0.50	0.46	0.50
pr_lao	Principal is a Lao interacted with pr_yn	0.42	0.49	0.78	0.42	0.33	0.47
pr_schlyr	Principal's years of schooling interacted with pr_yn	6.06	5.34	10.13	3.52	5.00	5.23
city_dis	Km distance to closest city	71.57	65.73	28.84	56.84	82.48	63.36
road_dis	Km distance to closest paved road	28.65	49.00	13.39	62.36	32.54	44.13
lsec_dis	Km distance to closest lower secondary school	11.02	21.80	6.48	27.75	12.18	19.83
fee_tuit	Fees are compulsory for tuition	0.51	0.50	0.71	0.45	0.46	0.50
fee_exam	Fees are compulsory for examinations	0.50	0.50	0.64	0.48	0.47	0.50
v_walktime	Mean walking time to school calculated over all households in village	26.87	39.18	25.83	39.77	27.16	39.01
C. Village Characteristics:							
althigh	Highlands	0.25	0.43	0.05	0.22	0.30	0.46
dprior1	Priority 1 district	0.24	0.43	0.14	0.34	0.27	0.45
dprior2	Priority 2 district	0.12	0.33	0.04	0.19	0.14	0.35
provu2	Urban province 2	0.00	0.07	0.02	0.15	0.00	0.00
provu3	Urban province 3	0.00	0.06	0.02	0.13	0.00	0.00
provu4	Urban province 4	0.01	0.09	0.04	0.19	0.00	0.00
provu5	Urban province 5	0.00	0.06	0.01	0.12	0.00	0.00
provu6	Urban province 6	0.01	0.09	0.04	0.19	0.00	0.00
provu7	Urban province 7	0.01	0.09	0.03	0.18	0.00	0.00
provu8	Urban province 8	0.01	0.12	0.07	0.25	0.00	0.00
provu9	Urban province 9	0.01	0.09	0.04	0.20	0.00	0.00

		National		Urban		Rural	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
provu10	Urban province 10	0.01	0.08	0.03	0.17	0.00	0.00
provu11	Urban province 11	0.01	0.11	0.06	0.24	0.00	0.00
provu12	Urban province 12	0.01	0.11	0.06	0.23	0.00	0.00
provu13	Urban province 13	0.03	0.17	0.14	0.35	0.00	0.00
provu14	Urban province 14	0.00	0.06	0.02	0.13	0.00	0.00
provu15	Urban province 15	0.00	0.05	0.01	0.11	0.00	0.00
provu16	Urban province 16	0.02	0.13	0.08	0.27	0.00	0.00
provu17	Urban province 17	0.00	0.04	0.01	0.10	0.00	0.00
provu18	Urban province 18	0.00	0.03	0.00	0.07	0.00	0.00
provr1	Rural province 1	0.02	0.15	0.00	0.00	0.03	0.17
provr2	Rural province 2	0.03	0.18	0.00	0.00	0.04	0.20
provr3	Rural province 3	0.02	0.14	0.00	0.00	0.02	0.15
provr4	Rural province 4	0.04	0.20	0.00	0.00	0.05	0.23
provr5	Rural province 5	0.02	0.14	0.00	0.00	0.02	0.15
provr6	Rural province 6	0.07	0.26	0.00	0.00	0.09	0.29
provr7	Rural province 7	0.05	0.22	0.00	0.00	0.07	0.25
provr8	Rural province 8	0.05	0.22	0.00	0.00	0.06	0.24
provr9	Rural province 9	0.04	0.19	0.00	0.00	0.05	0.22
provr10	Rural province 10	0.06	0.23	0.00	0.00	0.07	0.26
provr11	Rural province 11	0.02	0.15	0.00	0.00	0.03	0.17
provr12	Rural province 12	0.05	0.22	0.00	0.00	0.06	0.24
provr13	Rural province 13	0.12	0.33	0.00	0.00	0.16	0.36
provr14	Rural province 14	0.05	0.22	0.00	0.00	0.07	0.25
provr15	Rural province 15	0.01	0.10	0.00	0.00	0.01	0.11
provr16	Rural province 16	0.09	0.29	0.00	0.00	0.12	0.32
provr17	Rural province 17	0.02	0.13	0.00	0.00	0.02	0.15
provr18	Rural province 18	0.01	0.11	0.00	0.00	0.01	0.12

Source: LECS3, 2002/3.

Note: Birth order missing is also a measure of whether children are living in a household where at least one of their parents is head of household or spouse of head.

Table 18b: Variable definitions and descriptive statistics for samples of children aged 6 through 15 disaggregated by gender, location and ethno-linguistic family

	Urban				Rural											
	Male		Female		Lao-Tai						Non Lao-Tai					
					Male		Female		Total		Male		Female		Total	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
A.																
enroll	0.88	0.32	0.87	0.33	0.80	0.40	0.75	0.43	0.78	0.42	0.62	0.49	0.50	0.50	0.56	0.50
rpce	192.66	159.82	196.81	181.69	157.40	117.34	155.92	113.51	156.67	115.47	114.07	64.14	112.15	72.05	113.09	68.30
lrpce	11.98	0.57	11.99	0.59	11.82	0.51	11.81	0.51	11.81	0.51	11.54	0.45	11.51	0.44	11.52	0.45
lhhsiz	1.83	0.30	1.84	0.33	1.89	0.30	1.89	0.31	1.89	0.30	2.00	0.33	2.03	0.33	2.01	0.33
age6	0.07	0.25	0.07	0.25	0.09	0.29	0.09	0.29	0.09	0.29	0.13	0.33	0.13	0.33	0.13	0.33
age7	0.09	0.28	0.09	0.28	0.10	0.30	0.09	0.29	0.10	0.30	0.12	0.32	0.11	0.32	0.11	0.32
age8	0.10	0.30	0.09	0.29	0.11	0.31	0.11	0.31	0.11	0.31	0.12	0.33	0.13	0.33	0.13	0.33
age911	0.28	0.45	0.27	0.45	0.30	0.46	0.30	0.46	0.30	0.46	0.30	0.46	0.28	0.45	0.29	0.45
age12	0.11	0.31	0.13	0.33	0.11	0.32	0.11	0.32	0.11	0.32	0.11	0.31	0.11	0.32	0.11	0.31
age13	0.12	0.32	0.11	0.31	0.10	0.30	0.10	0.30	0.10	0.30	0.08	0.28	0.08	0.27	0.08	0.27
age14+	0.23	0.42	0.25	0.43	0.19	0.39	0.19	0.39	0.19	0.39	0.14	0.35	0.16	0.36	0.15	0.36
smadlt	0.24	0.11	0.25	0.12	0.22	0.09	0.23	0.09	0.22	0.09	0.20	0.08	0.21	0.09	0.20	0.08
sfadlt	0.25	0.11	0.25	0.10	0.23	0.09	0.24	0.09	0.24	0.09	0.22	0.09	0.21	0.09	0.22	0.09
sm616	0.31	0.14	0.14	0.13	0.30	0.13	0.15	0.13	0.22	0.15	0.28	0.12	0.13	0.12	0.20	0.14
sf616	0.12	0.12	0.29	0.13	0.14	0.13	0.29	0.12	0.22	0.15	0.14	0.12	0.28	0.11	0.21	0.14
sm06	0.04	0.07	0.04	0.07	0.06	0.09	0.05	0.08	0.05	0.09	0.08	0.10	0.09	0.10	0.09	0.10
sf06	0.03	0.07	0.03	0.07	0.05	0.08	0.05	0.08	0.05	0.08	0.08	0.10	0.08	0.10	0.08	0.10
c1or2	0.46	0.50	0.43	0.50	0.47	0.50	0.44	0.50	0.45	0.50	0.44	0.50	0.44	0.50	0.44	0.50
bordmis	0.09	0.28	0.11	0.32	0.09	0.28	0.09	0.29	0.09	0.29	0.12	0.32	0.11	0.31	0.11	0.32
female					0.00	0.00	1.00	0.00	0.50	0.50	0.00	0.00	1.00	0.00	0.51	0.50
eth1	0.88	0.33	0.89	0.31	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
eth2	0.05	0.22	0.05	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.48	0.62	0.48	0.63	0.48
eth3	0.03	0.18	0.02	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.29	0.09	0.28	0.09	0.29
eth4	0.04	0.19	0.04	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.43	0.25	0.44	0.25	0.43
eth5	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.16	0.03	0.17	0.03	0.17
malehead	0.94	0.23	0.93	0.25	0.97	0.18	0.97	0.17	0.97	0.17	0.97	0.16	0.98	0.12	0.98	0.14
headage	45.01	9.95	45.84	10.23	44.13	10.12	44.38	10.11	44.25	10.12	42.97	10.86	42.85	10.68	42.91	10.77
disabled	0.01	0.10	0.01	0.10	0.01	0.12	0.01	0.10	0.01	0.11	0.01	0.12	0.02	0.12	0.01	0.12
hdspmsch	6.77	4.00	6.89	4.08	4.99	3.24	4.94	3.25	4.97	3.24	2.72	2.76	2.85	2.90	2.79	2.83
hdspfsch	4.77	3.62	4.77	3.58	3.36	2.85	3.20	2.81	3.28	2.83	0.98	1.85	1.04	1.90	1.01	1.88

	Urban				Rural											
	Male		Female		Lao-tai						Non Lao-tai					
					Male		Female		Total		Male		Female		Total	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
B.																
elec_yn	0.42	0.49	0.46	0.50	0.08	0.28	0.08	0.27	0.08	0.28	0.02	0.14	0.02	0.14	0.02	0.14
compmul	0.33	0.47	0.31	0.46	0.22	0.42	0.22	0.41	0.22	0.41	0.09	0.29	0.09	0.28	0.09	0.29
ncompmul	0.09	0.29	0.08	0.27	0.37	0.48	0.38	0.49	0.38	0.48	0.55	0.50	0.56	0.50	0.56	0.50
ncomnmul	0.51	0.50	0.52	0.50	0.31	0.46	0.31	0.46	0.31	0.46	0.27	0.44	0.27	0.44	0.27	0.44
eachdesk	0.94	0.23	0.95	0.22	0.94	0.23	0.94	0.24	0.94	0.23	0.85	0.36	0.84	0.37	0.84	0.36
sh_wleaks	0.26	0.32	0.25	0.30	0.28	0.36	0.30	0.36	0.29	0.36	0.24	0.38	0.24	0.38	0.24	0.38
tc_shmale	0.26	0.27	0.29	0.27	0.66	0.34	0.65	0.34	0.66	0.34	0.76	0.37	0.77	0.36	0.77	0.37
tc_shlao	0.85	0.30	0.87	0.29	0.79	0.37	0.78	0.38	0.79	0.37	0.30	0.42	0.27	0.40	0.29	0.41
tc_mschlyr	10.13	0.97	10.14	0.95	9.99	1.37	10.04	1.35	10.01	1.36	9.25	1.94	9.28	1.95	9.26	1.95
pr_yn	0.94	0.24	0.94	0.24	0.59	0.49	0.60	0.49	0.59	0.49	0.38	0.48	0.36	0.48	0.37	0.48
pr_male	0.56	0.50	0.56	0.50	0.55	0.50	0.55	0.50	0.55	0.50	0.31	0.46	0.29	0.45	0.30	0.46
pr_lao	0.78	0.42	0.78	0.42	0.47	0.50	0.47	0.50	0.47	0.50	0.11	0.31	0.10	0.30	0.10	0.30
pr_schlyr	10.14	3.52	10.12	3.52	5.76	5.24	5.86	5.26	5.81	5.25	3.70	4.91	3.56	4.88	3.63	4.89
city_dis	30.82	60.81	26.58	51.84	76.04	63.81	76.13	62.79	76.09	63.30	93.82	61.97	92.92	61.92	93.35	61.95
road_dis	13.36	62.09	13.42	62.67	27.42	45.76	26.24	42.89	26.83	44.36	42.82	41.96	41.75	41.98	42.27	41.97
lsec_dis	5.99	26.61	7.04	28.99	7.34	17.89	7.18	16.59	7.26	17.26	20.37	20.86	20.71	21.28	20.55	21.08
fee_tuit	0.71	0.46	0.72	0.45	0.47	0.50	0.45	0.50	0.46	0.50	0.46	0.50	0.44	0.50	0.45	0.50
fee_exam	0.63	0.48	0.65	0.48	0.50	0.50	0.53	0.50	0.51	0.50	0.39	0.49	0.39	0.49	0.39	0.49
v_walktime	24.90	36.82	26.85	42.76	23.15	30.95	22.59	30.28	22.87	30.62	33.97	48.89	34.30	48.98	34.14	48.94
C.																
althigh	0.05	0.22	0.05	0.21	0.13	0.33	0.13	0.33	0.13	0.33	0.57	0.49	0.59	0.49	0.58	0.49
dprior1	0.14	0.35	0.13	0.34	0.18	0.39	0.19	0.39	0.19	0.39	0.41	0.49	0.41	0.49	0.41	0.49
dprior2	0.04	0.19	0.03	0.18	0.14	0.35	0.14	0.35	0.14	0.35	0.14	0.35	0.15	0.35	0.15	0.35

Full sample results

Our probit results for the full sample, using a basic model with child, household, and community characteristics, and an expanded model that also includes school characteristics, are presented in Table 19. Since the discussions above have shown clearly different patterns by urban-rural residence, gender, and ethnic affiliation, we also estimate probit models separately for subgroups of the population defined by these factors (Tables 20, 21 and 22). To aid interpretation, estimated probit coefficients have been transformed into marginal effects, evaluated at the mean. Standard errors in all estimated regressions have been corrected for heteroscedasticity and clustering at village level. Tables 18a and 18b present variable definitions and basic descriptive statistics for different samples.

The estimates of the basic model for the total sample of children ages 6 through 15 confirm the age progression in enrollment that we have seen in Figures 10-11: enrollment rates peak at ages 9-11, much later than the official starting age of six. The results confirm that girls are significantly less likely to be enrolled than boys (by 9 percent), and that non-Lao-Tai children are significantly less likely to attend school than Lao-Tai children. This disadvantage is largest for Chine-Tibetans. If a child is disabled, that is, unable to perform daily activities due to injury, disease or a birth-related defect, he or she is 16 percent less likely to be in school, a large effect. Neither a child's birth order nor household size per se matters for enrollment, but the composition of the household does.²² The proportion of household members who are young children is associated with the schooling of any one child, reflecting the effect of schooling costs on families with more children, as well as perhaps the trade-off that some parents make between having more children and investing more per child. In particular, our results show that, controlling for household size, the more preschool children ages 0 to 6 or children ages 6 to 16, whether boys or girls, a household has relative to the number of its adult females, the less likely is any child aged 6 to 16 to be enrolled in school. This negative association, ranging in size between 17 and 28 percent, is largest with respect to the number of preschool children, especially girls. Surprisingly, even the number of adult males relative to adult females in the household is negatively associated with school enrollment, although with less statistical significance. Other household composition variables, such as the age and sex of the household head, do not appear significant.

²² Since our regression also includes log per capita expenditures, the log of household size measures whether there are scale economies in schooling. The results indicate that there are none.

Higher household expenditures are associated with a higher schooling probability, possibly because it measures the family's ability to incur schooling costs and/or its desire to have more highly educated children. The expenditure gradient is not large, however. All else equal, increasing log per-capita consumption of the household by one unit—increasing the level of consumption by a factor of almost three—adds 9 percent to the probability of a child going to school. It is of interest in this context to refer back to the national panel in Figure 9 which shows a strong relationship between economic welfare and school enrollments. It would be tempting to draw strong implications from Figure 9 about the importance of economic growth. Indeed, the probit regression of schooling on expenditures per capita (and no other regressors) gives a highly significant (z stat = 11.2) estimated coefficient of 0.21—over twice the size of the partial regression coefficient including the controls (Table 19). Once we control for other observable characteristics, however, this coefficient is considerably lower and living standards are seen to be less central to achieving universal primary school enrollments.

Related to the expenditure variable are the head's and spouse's own completed education. Reflecting the family's preference for schooling, these education variables are associated positively with a child's enrollment, although with a much smaller effect than expenditures.

The set of 38 residence dummy variables—interactions between province and urban-rural location—will capture all geographical variation and heterogeneity not captured by other included variables, including an area's ability to supply schools and the local demand for an educated labor force. With one exception, we obtained positive coefficients for the urban-province variables when the estimates are statistically significant, and with two exceptions, negative coefficients for the rural-province variables.²³ Although a strict urban-rural dichotomy is seldom an accurate representation of the economic differences among areas, our results indicate that urban areas are associated with higher enrollment controlling for other characteristics. There are clearly some strong geographical effects.

²³ These estimates are all relative to the reference urban province of Vientiane City.

Table 19: The probability of attending school for children 6 through 16, 2002/3

Independent variable	Basic model		Expanded model	
	dF/dx	z	dF/dx	z
A. Child/Household Characteristics:				
Log of per capita consumption	0.09	4.51	0.06	5.05
Log household size	3.5e-03	0.15	-5.0e-05	0.00
Age 7	0.15	11.22	0.11	9.67
Age 8	0.21	17.47	0.16	15.52
Age 9 to 11	0.33	24.92	0.26	22.07
Age 12	0.24	17.76	0.18	16.85
Age 13	0.21	14.15	0.16	13.40
Age 14 and up	0.12	7.19	0.12	8.20
Share of male adults, 17 and up	-0.15	1.73	-0.15	2.01
Share of males aged 6 to 16	-0.20	3.21	-0.21	3.83
Share of females aged 6 to 16	-0.17	2.77	-0.19	3.55
Share of boys aged 0 to 6	-0.23	3.07	-0.23	3.57
Share of girls aged 0 to 6	-0.28	3.64	-0.24	3.55
Child is first or second born	0.01	1.21	3.3e-03	0.32
Birth order is missing	-0.06	3.14	-0.04	2.07
Female	-0.09	8.83	-0.08	7.63
Mon-khmer	-0.06	2.27	6.7e-04	0.04
Chine-Tibet	-0.31	3.93	-0.20	4.31
Hmong-Iu Mien	-0.10	2.67	-0.02	0.85
Male household head	-0.02	0.18	0.17	1.86
Age of household head	-1.6e-03	0.50	-1.3e-03	0.41
Age of head squared	2.6e-05	0.76	1.7e-05	0.53
Child is disabled	-0.16	3.18	-0.13	2.87
Male head/spouse's years of schooling	0.01	6.44	0.01	4.75
Female head/spouse's years of schooling	0.01	5.64	0.01	5.26
B. School Characteristics:				
Electricity			0.06	2.27
Complete & not multi-grade			0.25	11.85
Each student has desk			0.03	1.32
Share of leaky classrooms			-0.05	2.83
Share of male teachers			-0.02	0.95
Share of Lao teachers			0.05	2.16
Teachers years of schooling (mean)			6.4e-04	0.16
Principal is official			-0.11	1.86
Principal is male			0.06	1.90
Principal is Lao			-0.03	1.32
Principal's years of schooling			2.8e-03	0.58
Distance to closest				
City			-4.6e-04	3.70
Paved road			3.8e-04	2.72
lower secondary school			-9.8e-04	3.44
Fees are compulsory for				
Tuition			0.03	1.73
Exams			-0.02	1.55
Mean walking time to school			-1.7e-04	1.00

Table 19 (Cont'd)

Independent variable	Basic model		Expanded model	
	dF/dx	z	dF/dx	z
C. Village Characteristics:				
Highlands	-0.07	3.00	-0.03	1.91
Priority 1 districts	-0.05	2.40	0.01	0.65
Priority 2 districts	-0.14	4.36	-0.08	2.96
Urban province 2	0.21	3.00	0.15	3.48
Urban province 3	0.15	1.87	0.12	2.35
Urban province 4	-0.06	1.44	-3.7e-03	0.09
Urban province 5	0.05	0.92	0.11	3.23
Urban province 6	0.15	2.32	0.07	0.84
Urban province 7	0.14	3.58	0.10	3.02
Urban province 8	-0.11	1.56	-0.10	1.42
Urban province 9	0.14	2.71	0.09	1.72
Urban province 10	0.19	3.72	0.15	2.97
Urban province 11	0.09	0.83	0.05	0.31
Urban province 12	-0.05	0.38	0.04	0.45
Urban province 13	-0.12	1.83	-0.01	0.10
Urban province 14	0.04	0.54	0.07	1.77
Urban province 15	0.08	1.61	0.11	2.64
Urban province 16	1.5e-04	0.00	-0.05	0.81
Urban province 17	0.11	1.54	-	-
Urban province 18	0.04	0.98	-0.35	3.82
Rural province 1	0.04	0.59	0.07	1.21
Rural province 2	1.9e-03	0.02	0.09	1.95
Rural province 3	-0.20	2.42	-0.01	0.24
Rural province 4	-0.12	1.99	2.5e-03	0.05
Rural province 5	-0.18	3.10	0.04	0.88
Rural province 6	-0.05	1.23	0.01	0.27
Rural province 7	-0.08	1.55	0.02	0.48
Rural province 8	-0.10	2.16	-0.04	0.75
Rural province 9	0.06	1.15	0.10	2.58
Rural province 10	0.06	1.43	0.10	2.45
Rural province 11	0.08	2.11	0.11	2.94
Rural province 12	-0.07	1.49	-1.6e-04	0.00
Rural province 13	-0.15	3.32	-4.0e-03	0.08
Rural province 14	-0.31	5.21	-0.14	2.43
Rural province 15	-0.15	2.09	-0.01	0.23
Rural province 16	-0.10	2.21	-0.01	0.27
Rural province 17	-0.01	0.23	0.06	1.02
Rural province 18	0.12	2.91	0.07	1.53
Number of observations	13983		11059	
Pseudo R ²	0.23		0.28	

Source: LECS3, 2002/3.

Note: These are run as dprobits. Z statistics are based on standard errors corrected for heteroskedasticity and clustering at the village level.

Table 20: The probability of attending school for sub-samples of children 6 through 16, 2002/3

Independent Variable	Male dF/dx	Female dF/dx	Urban dF/dx	Rural dF/dx	Lao-Tai dF/dx	Non Lao-Tai dF/dx
A. Child/Household Characteristics:						
Log of per capita consumption	0.06 (4.59)	0.07 (3.84)	0.02 (2.22)	0.07 (4.73)	0.06 (5.02)	0.06 (2.08)
Log household size	0.01 (0.50)	-0.01 (0.35)	-2.4e-03 (0.09)	-6.4e-04 (0.03)	-3.4e-03 (0.18)	-0.01 (0.32)
Age 7	0.11 (9.38)	0.10 (5.02)	0.02 (1.68)	0.14 (9.63)	0.08 (7.47)	0.18 (6.31)
Age 8	0.14 (12.56)	0.16 (9.51)	0.04 (3.66)	0.19 (15.42)	0.11 (11.68)	0.25 (10.12)
Age 9 to 11	0.25 (18.24)	0.27 (14.91)	0.07 (5.61)	0.30 (21.43)	0.18 (16.42)	0.40 (15.52)
Age 12	0.16 (14.87)	0.18 (10.02)	0.05 (4.57)	0.21 (16.27)	0.12 (11.74)	0.31 (12.43)
Age 13	0.16 (13.08)	0.14 (6.51)	0.04 (3.01)	0.19 (13.22)	0.10 (9.53)	0.28 (10.23)
Age 14 and up	0.14 (10.77)	0.07 (2.70)	0.03 (2.18)	0.14 (7.81)	0.07 (5.56)	0.22 (6.90)
Share of male adults, 17 and up	-0.03 (0.33)	-0.30 (2.76)	-0.02 (0.31)	-0.20 (2.20)	-0.08 (1.12)	-0.34 (1.97)
Share of males aged 6 to 16	-0.12 (1.60)	-0.35 (4.26)	-0.02 (0.25)	-0.29 (4.26)	-0.09 (1.79)	-0.47 (3.67)
Share of females aged 6 to 16	-0.10 (1.61)	-0.31 (3.95)	-0.05 (0.91)	-0.25 (3.71)	-0.10 (2.01)	-0.37 (2.96)
Share of boys aged 0 to 6	-0.13 (1.75)	-0.35 (3.52)	-0.23 (2.89)	-0.24 (3.20)	-0.15 (2.24)	-0.41 (3.17)
Share of girls aged 0 to 6	-0.12 (1.54)	-0.38 (3.75)	-0.15 (1.82)	-0.28 (3.49)	-0.16 (2.06)	-0.36 (2.79)
Child is first or second born	-2.3e-04 (0.02)	3.5e-03 (0.22)	0.01 (1.13)	-9.2e-04 (0.08)	-0.01 (0.88)	0.02 (1.12)
Birth order is missing	-0.03 (1.38)	-0.05 (1.79)	-0.04 (1.45)	-0.04 (1.84)	-0.02 (0.81)	-0.09 (2.55)
Female child			-0.01 (1.16)	-0.09 (7.77)	-0.03 (3.89)	-0.16 (6.92)

Table 20 (continued)

Independent Variable	Male	Female	Urban	Rural	Lao-Tai	Non Lao-Tai
	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx
Mon-khmer	0.01 (0.36)	-0.01 (0.28)	-0.03 (1.40)	0.01 (0.32)		
Chine-Tibet	-0.18 (3.93)	-0.25 (2.95)	-0.22 (2.25)	-0.20 (3.83)		
Hmong-Iu Mien	-0.01 (0.31)	-0.03 (0.87)	-0.04 (0.90)	-0.01 (0.38)		
Male household head	0.18 (1.88)	0.19 (1.55)	0.02 (0.52)	0.05 (0.26)	0.23 (1.79)	0.11 (0.54)
Age of household head	-0.01 (2.62)	0.01 (1.53)	-0.01 (1.37)	-1.8e-04 (0.05)	-1.0e-03 (0.34)	2.0e-03 (0.31)
Age of head squared	9.2e-05 (2.55)	-6.5e-05 (1.27)	8.4e-05 (1.44)	5.6e-06 (0.15)	1.5e-05 (0.46)	-9.6e-06 (0.14)
Child is disabled	-0.13 (2.19)	-0.12 (1.83)	-0.12 (2.13)	-0.13 (2.40)	-0.16 (3.01)	-0.06 (0.77)
Male head/spouse's years of schooling	0.01 (5.00)	0.01 (2.55)	2.7e-03 (2.14)	0.01 (4.40)	4.3e-03 (2.82)	0.02 (3.69)
Female head/ spouse's years of schooling	0.01 (3.41)	0.02 (4.71)	1.3e-03 (0.71)	0.02 (5.57)	0.01 (4.56)	0.02 (3.46)
B. School Characteristics:						
Electricity	0.03 (1.34)	0.09 (2.44)	0.01 (0.67)	0.08 (1.98)	0.01 (0.62)	0.10 (0.77)
Complete & not multi-grade	0.20 (10.19)	0.30 (10.31)	0.11 (6.27)	0.28 (9.92)	0.19 (11.14)	0.36 (6.59)
Each student has desk	0.02 (1.05)	0.04 (1.14)	-0.02 (0.57)	0.03 (1.14)	-0.02 (0.68)	0.12 (2.39)
Share of leaky classrooms	-0.04 (2.12)	-0.05 (2.37)	0.02 (0.87)	-0.05 (2.42)	-0.05 (3.28)	-0.07 (1.52)
Share of male teachers	0.01 (0.63)	-0.05 (1.73)	0.02 (0.84)	-0.03 (1.38)	-0.01 (0.52)	-0.08 (1.62)
Share of Lao teachers	0.02 (0.86)	0.08 (2.52)	0.18 (3.20)	0.04 (1.54)	0.03 (1.20)	0.09 (2.06)
Teachers' years of schooling	1.3e-03 (0.35)	4.7e-04 (0.08)	0.01 (0.94)	-3.2e-04 (0.07)	-7.2e-04 (0.16)	1.3e-03 (0.17)

Table 20 (continued)

Independent variable	Male	Female	Urban	Rural	Lao-Tai	Non Lao-Tai
	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx	dF/dx
Official principal	-0.10 (1.81)	-0.09 (1.12)	0.07 (1.13)	-0.10 (1.26)	-0.08 (1.87)	-0.07 (0.46)
Principal is male	0.03 (1.20)	0.07 (1.73)	0.01 (0.75)	0.05 (1.16)	0.03 (1.29)	0.06 (0.74)
Principal is Lao	-3.8e-03 (0.16)	-0.07 (1.95)	-0.02 (1.31)	-0.03 (1.07)	-0.02 (0.74)	-0.11 (1.55)
Principal's years of schooling	2.0e-03 (0.39)	2.8e-03 (0.44)	-8.0e-04 (0.28)	5.2e-04 (0.08)	3.7e-03 (1.03)	-0.01 (0.37)
Km to closest city	-4.3e-04 (3.54)	-5.2e-04 (2.97)	3.0e-04 (2.80)	-5.5e-04 (3.65)	-3.0e-04 (2.98)	-7.8e-04 (2.60)
Km to closest paved road	4.6e-04 (3.18)	2.7e-04 (1.37)	1.5e-04 (2.02)	3.0e-04 (1.59)	2.6e-04 (2.09)	8.0e-04 (2.63)
Km to closest lower secondary school	-1.2e-03 (4.10)	-7.7e-04 (1.77)	5.6e-04 (2.06)	-1.4e-03 (3.39)	-7.1e-04 (2.53)	-1.4e-03 (1.93)
Tuition fees are compulsory	0.02 (1.09)	0.04 (1.83)	0.02 (1.24)	0.02 (1.20)	0.02 (1.47)	0.05 (1.51)
Exams fees are compulsory	-0.03 (2.22)	-0.02 (0.69)	-0.03 (2.16)	-0.02 (1.13)	-0.02 (1.33)	-0.02 (0.53)
Mean walking time to school	-4.1e-04 (2.50)	6.2e-05 (0.22)	-3.6e-04 (2.14)	-1.7e-04 (0.78)	1.9e-05 (0.11)	-4.2e-04 (1.03)
C. Village Characteristics*:						
Highlands	-0.02 (0.93)	-0.05 (2.12)	-1.4e-03 (0.04)	-0.04 (2.01)	-0.01 (0.75)	-0.04 (1.01)
Priority 1 districts	0.02 (1.30)	-5.0e-05 (0.00)	-4.7e-03 (0.20)	0.02 (0.86)	3.8e-03 (0.20)	0.02 (0.62)
Priority 2 districts	-0.07 (2.62)	-0.09 (2.40)	-3.1e-03 (0.11)	-0.07 (2.43)	-0.05 (2.35)	-0.05 (0.77)
Number of observations	5482	5470	1831	9228	6925	4144
Pseudo R ²	0.27	0.30	0.31	0.28	0.27	0.26
Wald test: chi2	786.0		176.5		2215.9	
Prob> chi2	0.0000		0.0000		0.0000	

Source: LECS3, 2002/3.

Note: A full set of province urban/rural dummies are included in all regressions but not shown for ease of presentation. Z statistics based on standard errors corrected for heteroskedasticity and clustering at the village level are given in parentheses.

Table 21: The probability of attending school for rural children 6 through 16 by gender and ethno-linguistic group, 2002/3

	Rural male Lao-Tai	Rural female Lao-Tai	Rural male non Lao-Tai	Rural female non Lao-Tai
Independent Variable	dF/dx	dF/dx	dF/dx	dF/dx
A. Child/Household Characteristics:				
Log of per capita consumption	0.06 (3.14)	0.08 (4.47)	0.08 (2.42)	0.07 (1.55)
Log household size	0.01 (0.32)	-0.02 (0.76)	-0.01 (0.14)	-0.01 (0.13)
Age 7	0.10 (6.68)	0.08 (3.87)	0.19 (5.99)	0.19 (3.86)
Age 8	0.13 (9.68)	0.12 (7.44)	0.23 (7.33)	0.30 (7.50)
Age 9 to 11	0.20 (13.06)	0.20 (11.17)	0.40 (12.61)	0.45 (10.55)
Age 12	0.13 (9.59)	0.13 (7.19)	0.29 (11.12)	0.32 (6.57)
Age 13	0.13 (9.12)	0.10 (4.92)	0.28 (10.12)	0.26 (4.57)
Age 14 and up	0.11 (7.29)	0.04 (1.44)	0.25 (7.42)	0.17 (2.87)
Share of male adults, 17 and up	0.05 (0.41)	-0.28 (2.42)	-4.3e-03 (0.02)	-0.74 (2.89)
Share of males aged 6 to 16	-0.04 (0.41)	-0.28 (3.41)	-0.24 (1.30)	-0.75 (3.80)
Share of females aged 6 to 16	-0.02 (0.24)	-0.28 (3.35)	-0.24 (1.53)	-0.48 (2.43)
Share of boys aged 0 to 6	0.09 (0.95)	-0.35 (3.22)	-0.34 (1.78)	-0.45 (2.30)
Share of girls aged 0 to 6	-0.13 (1.15)	-0.25 (2.22)	-0.07 (0.38)	-0.64 (3.15)
Child is first or second born	-0.02 (1.17)	-0.02 (1.09)	0.02 (0.74)	0.03 (0.81)
Birth order is missing	-0.02 (0.57)	-4.4e-03 (0.16)	-0.08 (1.55)	-0.09 (1.82)
Male household head	- -	- -	0.60 (2.30)	0.07 (0.18)
Age of household head	-4.2e-03 (1.02)	3.8e-03 (0.79)	-0.01 (1.68)	0.01 (1.49)
Age of head squared	4.6e-05 (1.10)	-3.5e-05 (0.69)	1.3e-04 (1.57)	-1.3e-04 (1.18)
Child is disabled	-0.10 (1.47)	-0.37 (2.97)	-0.03 (0.32)	-0.03 (0.28)
Male head/spouse's yrs of schooling	0.01 (3.84)	1.1e-03 (0.38)	0.02 (3.21)	0.02 (2.90)
Female head/spouse's yrs of schooling	0.01 (2.80)	0.02 (5.83)	0.01 (1.47)	0.02 (2.44)

Table 21 (continued)

	Rural male Lao- Tai	Rural female Lao-Tai	Rural male non Lao-Tai	Rural female non Lao-Tai
Independent Variable	dF/dx	dF/dx	dF/dx	dF/dx
B. School Characteristics:				
Electricity	0.02 (0.56)	0.06 (1.73)	0.07 (0.48)	0.26 (1.58)
Complete & not multi-grade	0.19 (9.04)	0.23 (8.27)	0.30 (4.79)	0.46 (5.32)
Each student has desk	-0.02 (0.61)	-1.3e-03 (0.03)	0.11 (2.30)	0.08 (1.12)
Share of leaky classrooms	-0.04 (1.85)	-0.04 (2.06)	-0.06 (1.16)	-0.07 (1.30)
Share of male teachers	0.02 (0.97)	-0.06 (2.37)	-0.07 (1.55)	-0.10 (1.39)
Share of Lao teachers	0.02 (0.62)	0.02 (0.52)	0.04 (0.74)	0.12 (2.09)
Teachers' years of schooling	3.5e-03 (0.62)	-0.01 (1.13)	-3.9e-03 (0.55)	0.01 (0.57)
Official principal	-0.03 (0.41)	-0.20 (2.71)	0.10 (0.63)	0.05 (0.20)
Principal is male	-0.02 (0.35)	0.11 (2.16)	-0.03 (0.29)	0.11 (0.99)
Principal is a Lao	-0.01 (0.50)	1.5e-03 (0.04)	-0.02 (0.31)	-0.25 (2.37)
Principal's years of schooling	5.8e-04 (0.10)	5.0e-03 (0.98)	-0.02 (1.41)	-0.01 (0.52)
Km to closest city	-2.6e-04 (1.73)	-3.6e-04 (2.21)	-1.2e-03 (3.70)	-5.8e-04 (1.10)
Km to closest paved road	3.2e-04 (1.58)	-5.9e-06 (0.02)	1.0e-03 (2.29)	1.3e-04 (0.22)
Km to closest lower sec. school	-1.4e-03 (2.37)	-9.4e-04 (1.63)	-9.8e-04 (1.38)	-1.8e-03 (1.36)
Tuition fees are compulsory	0.02 (0.93)	0.02 (0.90)	0.03 (0.83)	0.08 (1.54)
Exam fees are compulsory	-0.03 (1.66)	0.01 (0.65)	-0.03 (0.71)	-2.9e-03 (0.05)
Mean walking time to school	5.2e-05 (0.19)	1.2e-04 (0.43)	-8.9e-04 (2.70)	1.3e-04 (0.18)
C. Village Characteristics:				
High altitude lands	-1.8e-03 (0.09)	-0.06 (2.23)	-0.04 (0.87)	-0.01 (0.12)
Priority 1 districts	0.01 (0.30)	0.03 (1.21)	0.06 (1.59)	0.01 (0.25)
Priority 2 districts	-0.04 (1.49)	-0.05 (1.50)	-0.04 (0.62)	0.01 (0.06)
Number of observations	2749	2686	1832	1955
Pseudo R ²	0.25	0.33	0.27	0.24

Source: LECS3, 2002/3.

Note: A full set of province rural dummies are included in all regressions but not shown for ease of presentation. Z statistics based on standard errors corrected for heteroskedasticity and clustering at the village level are given in parentheses.

Table 22: The probability of attending school for urban children 6 through 16 by gender, 2002/3

Independent variable	Urban male	Urban female
	dF/dx	dF/dx
A. Child/Household Characteristics:		
Log of per capita consumption	0.03 (3.20)	0.03 (2.63)
Log household size	0.02 (0.65)	1.1e-03 (0.04)
Age 7	0.03 (2.76)	-0.01 (0.23)
Age 8	0.04 (4.12)	1.0e-03 (0.04)
Age 9 to 11	0.08 (5.70)	0.04 (2.02)
Age 12	0.04 (4.78)	0.04 (1.84)
Age 13	0.04 (4.16)	-0.01 (0.24)
Age 14 and up	0.05 (4.04)	-0.03 (0.99)
Share of male adults, 17 and up	-0.10 (1.68)	0.01 (0.16)
Share of males aged 6 to 16	-0.06 (0.88)	0.08 (1.25)
Share of females aged 6 to 16	-0.07 (1.40)	-0.03 (0.49)
Share of boys aged 0 to 6	-0.26 (2.88)	-0.15 (1.52)
Share of girls aged 0 to 6	-0.12 (1.60)	-0.18 (1.57)
Child is first or second born	1.2e-03 (0.10)	0.02 (1.36)
Birth order is missing	-5.2e-04 (0.03)	-0.08 (1.84)
Mon-khmer	-2.5e-03 (0.11)	-0.08 (2.09)
Chine-Tibet	-0.35 (2.66)	
Hmong-Iu Mien	-0.02 (0.70)	-0.11 (1.46)
Male household head	0.05 (0.88)	3.5e-03 (0.08)
Age of household head age	-0.01 (2.15)	-3.8e-03 (0.53)
Age of head squared	1.2e-04 (2.06)	4.6e-05 (0.62)
Child is disabled	-0.12 (2.49)	-0.12 (1.14)
Male head/spouse's years of schooling	1.5e-03 (1.35)	2.7e-03 (1.24)

Female head/spouse's years of schooling	1.8e-03 (1.04)	-1.3e-03 (0.47)
Independent Variable	Urban male	Urban female
	dF/dx	dF/dx
B. School Characteristics:		
Electricity	0.02 (1.33)	0.01 (0.84)
Complete & not multi-grade	0.09 (5.32)	0.10 (4.78)
Each student has desk	0.03 (0.71)	-0.05 (2.51)
Share of leaky classrooms	0.03 (1.79)	-0.01 (0.35)
Share of male teachers	0.05 (2.02)	-0.01 (0.24)
Share of Lao teachers	0.12 (1.85)	0.14 (2.93)
Teachers' years of schooling	3.5e-04 (0.05)	0.02 (2.22)
Official principal	-0.02 (1.26)	0.67 (4.06)
Principal is male	0.02 (1.26)	-0.04 (2.08)
Principal is a Lao	-0.01 (0.80)	-0.06 (3.87)
Principal's years of schooling	2.4e-03 (1.05)	-3.5e-03 (1.12)
Km to closest city	1.7e-04 (1.81)	2.7e-04 (2.18)
Km to closest paved road	2.5e-04 (2.42)	9.3e-05 (1.00)
Km to closest lower secondary school	-1.5e-04 (0.97)	1.9e-03 (4.91)
Tuition fees are compulsory	0.01 (0.66)	0.06 (2.50)
Exam fees are compulsory	-0.02 (1.12)	-0.06 (3.45)
Mean walking time to school	-2.5e-04 (1.49)	-5.6e-04 (2.84)
C. Village Characteristics:		
Highlands	0.02 (0.99)	0.03 (1.53)
Priority 1 districts	-0.01 (0.30)	-0.06 (1.77)
Priority 2 districts	0.02 (0.65)	-0.07 (1.72)
Number of observations	897	826
Pseudo R ²	0.39	0.32

Source: LECS3, 2002/3.

Note: A full set of province dummies are included in all regressions but not shown for ease of presentation. Z statistics based on standard errors corrected for heteroskedasticity and clustering at the village level are given in parentheses.

We have included two other variables that will further reflect local economic conditions. One is the altitude of the village. Given that the regression already controls for province urban and rural fixed effects, this variable will measure the specific effect of living in highland areas where schools tend to be of lower quality and more difficult to reach. Confirming our earlier descriptive findings, we find that children in highland villages are 7 percent less likely to be enrolled in school relative to children in lowland areas. We also find that children residing in priority districts (1 or 2) are significantly less likely to be enrolled.

We turn next to our results for the expanded model in which we include school-related variables. In the expanded model, the coefficients of the household and child characteristics discussed above remain qualitatively the same, but there is loss in coefficient size for some due to a positive correlation between household and community variables and the added school variables. In the context of our previous discussion, note that the coefficient on expenditures is even further reduced (to 0.06). The ethnicity variables also lose statistical significance, except for the variable representing Chine-Tibetan affiliation. In addition, a child is now more likely to be enrolled in school in male-headed households.

Turning now to the school variables, complete primary schools, ones that offer the full set of primary grades, have a strong and highly significant effect on whether children are enrolled in school (25 percent more likely). Note that this variable pertains only to schools that do not have multi-grade classrooms; in Lao PDR, 71 percent of schools are either incomplete or multi-grade, or both. Incomplete schools have also been found to raise dropout rates and repetition rates in Cambodia (World Bank 2005). The school's proximity to the closest city or the lower secondary school and the average time it takes for a student to walk to school are negatively related to enrollment, while proximity to a paved road, given the other distance measures, has a positive effect on enrollment. Additionally, as expected, better facilities, such as availability of electricity, whether or not students each have a desk, and the physical condition of classrooms (as measured by the proportion with functioning or non-leaking roofs) all promote enrollment.

Our results with respect to school fees are contradictory and warrant discussion: higher school tuition fees appear to increase (rather than decrease) enrollment whereas higher examination fees reduce enrollment, though neither is statistically significant in this national

model. As discussed earlier, the government has been able to reduce tuition for households, and so these fees comprise only a small share of education expenditures (3-7 percent), especially in comparison with the remainder item “other” (10-20 percent of expenditures) which includes exam fees (as shown in Table 12). Recall also that it was rare for respondents to cite “expense” as a reason for children not attending school (Figure 12). One possible explanation for the positive sign of the tuition fee variable is that, though small, the fee indicates a school’s access to discretionary resources to the extent that fee revenues are retained by schools. According to one report, such funds are generally kept in the schools and “always dedicated to operating expenses/current management and small investment” (p.31 European Union, 2005).

To measure the quality of instruction, we include the characteristics of teachers and principals—their sex, ethno-linguistic affiliation, and education. A higher share of Lao-Tai teachers in the school, irrespective of the ethnicity of the majority of students, increases enrollment, as does having a male rather than a female principal. Whether the village school has an official principal appears to have a negative effect on enrollment. We do not understand this effect, but it could mean that having a principal means that the school has one fewer teacher, especially in smaller schools. The principal’s education has a positive, though small, effect. But as a whole, this set of factors does not appear to matter much for enrollment. Neither the principal’s ethno-linguistic affiliation or schooling, nor the teachers’ schooling or gender is significantly associated with enrollment.²⁴

The above model is the one we used to see how school quality in the aggregate varies with living standards. We created the “school quality index” based on the above expanded regression of whether children aged 6 through 15 are enrolled in school or not.²⁵ The estimated regression coefficients on the school characteristics provide a way of aggregating individual school characteristics using their relative effects on schooling enrollment (purged of household and individual effects) as weights. The resulting quality estimates are then normalized to be between zero and one. The index is plotted against expenditure per capita in Figure 16, as discussed in the previous section.

²⁴ This result is in contrast to that found in Cambodia (World Bank 2005) where the dropout rates of students are lower the higher the average experience and schooling of teachers. The study also found that the characteristics of teachers and of school principals are highly correlated and so it is difficult to separate their effects.

²⁵ The regression is reported in Table 19.

Urban and rural groups

In this section and the following ones, we focus on the results for subgroups in the population. We find some striking and important differences in the normalized coefficients of the probit model, estimated as marginal effects, between the samples of boys and girls, urban and rural children and Lao-Tai and non Lao-Tai children (Table 20). Indeed, Wald tests (see Table 20) reject equality of the models across these groups. As we will see, further model disaggregations are also warranted (Tables 21 and 22). Some of these differences pertain to child and household characteristics, and some to school characteristics.

For all children, enrollment peaks at ages 9-11, relative to six-year-olds, but this is the case for only 7 percent in urban areas, as compared with 30 percent in rural areas, indicating a much later age of entry into school in rural areas. In fact, in rural areas, enrollment is still rising beyond age 11. A striking difference is in how much larger and statistically significant coefficients on the age-sex household composition variables are for rural areas. There, a higher share of younger members aged 6 and older, or of adult men in the household relative to women, have a strong negative effect on enrollments. This is not the case in urban areas. The education of the male household head has a much more pronounced and significant effect in rural than in urban areas, while the female head or spouse's education is only significant for rural children. Household location in the highlands and residence in a priority district is significant and negatively important for rural but not for urban children. Being female makes little difference to school enrollments in urban areas but has a strongly negative association in rural areas.

There are also important differences with respect to the school variables. Having a complete, non-multi-grade school in the village is positively and significantly associated with enrollment, but this effect is more than double in rural than in urban areas, presumably because it is easier for urban residents than for rural residents to attend a school in the neighboring area. This echoes the qualitative results from Figure 12—that proximity is more important in rural areas. A higher share of Lao teachers increases enrollments in urban areas but not in rural areas. School facilities—electricity and non-leaky classrooms—also have a larger effect in rural than in urban areas, quite likely because there is less variation in this regard among urban schools and more variation among rural schools.

Results for gender groups

The differences in the results for the basic model indicate that girls' schooling is generally more precarious and also more responsive to the costs and conditions of schooling and the socio-economic and demographic conditions faced by the household. Boys and girls do not have the same age-enrollment profile. Boys who do not enter school by the peak ages of 9-11 are nonetheless likely to enter school at later ages, whereas girls who are not in school by ages 9-11 are unlikely to do so subsequently. Ethno-linguistic differences are more pronounced for girls than for boys: girls from minority groups are much less likely to be in school than those from the Lao-Tai group compared to boys from the same groups. The household's age and sex composition has a much larger and a statistically significant effect on girls than on boys, so for girls the number of children and even number of men relative to the number of women within the household tend to reduce girls' enrollment. In addition, while household per-capita consumption has approximately the same effect on girls and boys, the household's location (as measured by whether it is in the highlands and in a priority district) makes a bigger difference for girls than boys, indicating that girls' enrollment is more highly associated with the household's living standard and the economic value of schooling in their community.

There are noteworthy differences also with respect to the school variables: having a complete, non-multi-grade school in the village has a much larger effect for girls than for boys, but controlling for this, the time to walk to school has a negative effect for boys and none for girls. The positive association with tuition fee that we noted for the full sample is significant only for girls and not for boys. If indeed this variable is more a measure of school quality, then the results could be interpreted as indicating that girls' enrollment is more responsive to school quality than boys' enrollment. Exam fees which tend to be a larger expenditure item have a negative effect, but it is significant only for boys not for girls. School characteristics typically have both a more pronounced and statistically significant effect on girls than on boys.

When the regressions are run on more finely disaggregated samples, we find once again that this is warranted. Wald tests reject the equality of the models between boys and girls within the rural Lao-Tai ($\chi^2(55)=234.7$, $\text{prob} > \chi^2 = 0.0000$) and within the rural non-Lao-Tai ($\chi^2(55)=322.6$, $\text{prob} > \chi^2 = 0.0000$) ethno-linguistic groups, and between the ethno-linguistic

groups among rural girls ($\chi^2(57)=4126.5$, $\text{prob}> \chi^2 = 0.0000$) and among rural boys ($\chi^2(57)=6760.2$, $\text{prob}> \chi^2 = 0.0000$). There are some striking differences in individual coefficients (Table 21). For example, as noted above, household gender and age composition have significant negative effects on rural girls' school enrollments but not on boys' enrollments. Relative to adult females, the share of adult males significantly reduces female but not male schooling. These effects hold whatever the ethno-linguistic affiliation. However, all these effects are considerably stronger for girls in non-Lao-Tai households. The latter are also the only sub-group for whom household per capita consumption has an insignificant effect on the probability of going to school. Another notable finding is that disability has a considerable negative impact on enrollments of rural Lao-Tai girls but none of the other child sub-groups. Table 22 presents the probits run separately on urban males and females. Again, equality of the models is rejected ($\chi^2(57)=1795.8$, $\text{prob}> \chi^2 = 0.0000$). There are too few observations in urban areas to further disaggregate by ethno-linguistic group (Tables 23-24).

Table 23: Distribution of the ethno-linguistic population across locations (%)

	Urban	Rural	Total
Lao-Tai	20.7 (31.0)	46.0 (69.0)	66.7 (100.0)
Other	2.3 (6.9)	31.0 (93.1)	33.3 (100.0)
Total	23.0	77.0	100.0

	Lowland	Mixed	Upland	Total
Lao-Tai	48.8 (73.4)	11.1 (16.6)	6.6 (9.9)	66.5 (100.0)
Other	8.7 (26.0)	6.4 (19.2)	18.4 (54.8)	33.5 (100.0)
Total	57.5	17.5	25.0	100.0

	Priority 1		Priority 2		Non Priority		Total
	Urban	Rural	Urban	Rural	Urban	Rural	
Lao-Tai	2.0 (3.0)	8.4 (12.5)	0.6 (0.9)	6.2 (9.3)	18.1 (27.1)	31.4 (47.1)	66.7 (100.0)
Other	0.8 (2.3)	12.9 (38.7)	0.1 (0.4)	4.2 (12.6)	1.4 (4.2)	13.9 (41.8)	33.3 (100.0)
Total	2.7	21.3	0.7	10.4	19.5	45.4	100.0

Source: LECS3, 2002/3.

Table 24: Mean per capita expenditures by ethno-linguistic family and location (2002/3 Kips per month)

	Urban	Rural	Total
Lao-Tai	213458.6	160974.7	177241.5
Other	144264.4	116827.8	118731.2
Total	206492	143192.6	157735.6

	Lowland	Mixed	Upland	Total
Lao-Tai	182817.8	157726	170063.6	177376.7
Other	119741.7	123091.6	116726.7	118731.2
Total	173266.8	145001.9	130834.8	157727.5

	Priority 1		Priority 2		Non Priority		Total
	Urban	Rural	Urban	Rural	Urban	Rural	
Lao-Tai	157989.8	143641.6	249828.6	143743	218335.5	168999.3	177241.5
Other	124312.1	104913	127205.6	110174.1	156937.3	129848.6	118731.2
Total	148544.3	120155.7	226244	130213.2	213918.9	156968.1	157735.6

Source: LECS3, 2002/3.

7. Conclusions

Over the last 40 years, Lao PDR has seen steady progress in educational outcomes across the groups in its population, as evidenced by higher enrollment rates, literacy rates, and more schooling years completed, among other indicators. This progress has been partly a result of government education policy because economic growth alone, as measured by the trend in per-capita consumption, would have predicted less progress than what has been achieved. The progress has placed the country a lot closer to its neighbors (e.g., Cambodia, Thailand), but significant challenges lie ahead. First, the size of the population of school age will continue to rise, requiring a continued expansion in the number of school places. The number of children aged 5-9 and 10-14, said to have grown by 20 percent over the period 2000-2005, are predicted to grow at 8 and 7 percent, respectively, in the succeeding five years (United Nations 2004). Second, past progress has been mostly about increasing the intake of school-age children and much less about raising school continuation or completion rates. The challenge is to keep children in school long enough and to improve instruction in classrooms so that children acquire functional literacy and numeracy and other important skills for life and work.

Moreover, educational progress in Lao PDR has not been equal across groups. We find significant disparities according to a person's residence, gender, ethno-linguistic affiliation and income, and how these attributes interact. In general, urban, male, well-off, Lao-Tai groups do better than rural, female, poor, non-Lao-Tai ethno-linguistic groups. In particular, rural women who are non-Lao-Tai have lagged farthest behind other groups. This is in stark contrast to Lao-Tai women whose literacy and years of education have converged in recent years with those of Lao-Tai men in urban areas, and have achieved nearly the same in rural areas.

While the education levels of all groups have risen, some disparities appear to be unyielding. Given current enrollments and survival from one cycle to the next, these patterns are set to continue for some time. In explaining enrollments, we find that girls' schooling is more responsive to household and school characteristics than boys'. This is particularly so for poor, rural, non Lao-Tai girls. Indeed, we find that the underlying factors that together explain why some children are enrolled and others are not, differ significantly across subgroups by gender, urban-rural residence and ethno-linguistic affiliation. Finer disaggregation, such as by gender and by ethno-linguistic group in rural areas, consistently rejects similar models. The results imply that policy interventions to increase schooling will not succeed unless they are carefully tailored to the specific constraints and needs facing each group.

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Appendix Tables

Table A1: Alternative definitions of the literacy rate for the population 18 to 60, by gender, ethno-linguistic family, urban/rural location, and poor/non-poor status, 2002/3 (%)

	Urban				Rural			
	Lao-Tai		Other		Lao-Tai		Other	
	Male	Female	Male	Female	Male	Female	Male	Female
Total								
Literacy rate:								
a)	97.1*	91.9*	95.7*	67.9*	92.2*	76.2*	72*	33.3*
b)	93.3	84.8	88.7	59.4	81	62.2	51.1	21.4
obs.	2,041	2,130	301	306	4,615	4,903	4,025	4,236
Non-poor								
Literacy rate:								
a)	97.7*	92.9*	96.8*	68.5	93.2*	79.4*	75*	37.6*
b)	94.8	86.7	92.4	60.6	84.6	67.8	55.5	25.5
obs.	1,723	1,816	187	188	3,423	3,595	2,067	2,118
Poor								
Literacy rate:								
a)	93.7*	85.7*	93.8*	66.8	89.4*	66.6*	68.8*	29*
b)	86.4	75.6	81.5	56.9	72.4	49.4	46.3	17.1
obs.	318	314	114	118	1,192	1,308	1,958	2,118

Source: LECS3, 2002/3.

Note: A person is defined as literate if they say that they can read and write a) with or without difficulty; and b) without difficulty. The estimates are population weighted. * Indicates 5% significance for the t-test that a) is greater than b).

Table A2: Literacy rates for population aged 18 to 60 by location and quintile, 1997/8 and 2002/3

Provinces	1997/8						2002/3					
	National consumption per capita quintiles					Total	National consumption per capita quintiles					Total
	1	2	3	4	5		1	2	3	4	5	
National:												
Vientiane City	88.9	89.9	87.6	91.6	96.3	92.7	90.0	95.7	96.1	97.1	96.9	96.1
Phongsaly	30.8	39.6	52.5	59.3	57.0	44.0	43.2	43.1	51.2	55.4	75.0	48.3
Luangnamtha	26.1	33.5	36.3	40.3	42.1	34.6	46.8	57.2	42.6	44.8	53.9	48.6
Oudomxay	47.6	59.4	61.5	63.6	77.8	56.5	46.7	59.5	60.3	71.3	80.7	61.0
Bokeo	38.3	44.9	55.7	51.9	63.1	50.8	50.8	53.4	67.4	71.7	75.5	66.7
Luangprabang	48.4	66.4	58.2	71.4	72.6	64.1	52.7	68.0	71.5	79.2	85.8	70.7
Huaphanh	50.2	59.8	70.3	59.5	71.6	57.6	59.9	70.2	78.2	86.0	83.6	72.3
Xayabury	78.2	74.2	76.4	78.4	86.2	80.3	75.9	88.5	91.7	92.9	95.5	90.5
Xiengkhuang	71.8	77.8	74.4	72.9	73.5	74.0	64.0	69.5	77.1	84.6	83.8	74.7
Vientiane	72.0	69.9	75.3	83.6	88.6	79.9	75.7	83.6	83.3	90.1	94.4	87.7
Borikhamxay	58.2	70.2	74.1	79.3	86.9	76.3	67.8	77.4	94.2	91.2	95.5	87.1
Khammuane	62.9	72.6	77.8	73.8	88.2	75.5	62.4	62.4	74.8	75.3	82.2	71.8
Savannakhet	50.6	59.8	73.2	72.6	81.6	67.3	54.5	71.2	78.2	77.4	82.4	71.7
Saravane	42.5	55.5	62.2	69.1	68.3	59.4	57.2	62.4	67.9	65.7	71.7	63.3
Sekong	48.2	52.2	49.3	51.6	62.5	52.3	63.6	71.6	75.9	70.2	77.7	71.3
Champasack	62.3	70.9	72.3	76.9	78.5	73.0	83.7	84.4	86.9	83.7	87.2	85.7
Attapeu	48.4	68.0	66.8	84.2	86.7	68.7	72.7	78.4	84.3	86.7	95.0	82.1
Xaysomboun SR	58.8	61.4	51.1	65.5	66.8	60.1	67.5	66.5	78.9	70.6	72.1	71.3
Total	52.8	64.3	70.9	74.8	83.6	70.1	61.0	72.5	78.1	82.1	88.4	77.4
Urban:												
Vientiane City	91.6	90.9	93.9	93.7	97.3	95.1	94.9	97.4	96.5	98.8	97.3	97.3
Phongsaly	80.0	86.4	91.8	94.2	92.2	88.1	85.0	76.8	81.7	89.4	85.4	83.3
Luangnamtha	57.2	75.5	79.9	76.5	90.7	76.8	90.7	80.8	85.8	93.4	83.3	86.4
Oudomxay	72.9	85.5	79.5	85.7	89.0	82.8	79.1	75.3	88.8	91.2	94.9	85.9
Bokeo	47.8	56.2	68.3	81.9	89.3	75.8	88.3	93.8	86.3	90.1	91.4	89.9
Luangprabang	85.3	90.9	96.7	93.6	96.0	93.9	82.1	92.9	-	85.5	98.7	93.3
Huaphanh	94.6	85.9	83.0	91.0	95.8	89.8	85.7	84.6	-	-	-	95.5
Xayabury	60.5	75.4	93.2	96.4	91.4	90.9	97.6	-	-	90.1	94.8	97.0
Xiengkhuang	69.9	91.3	85.1	94.4	98.6	91.5	88.8	38.5	96.8	92.2	94.0	90.8
Vientiane	91.3	93.5	92.4	87.1	93.2	91.4	65.9	95.2	88.2	89.3	93.7	91.4
Borikhamxay	68.6	79.3	89.1	92.5	83.8	82.6	91.9	90.8	-	91.3	96.7	94.8
Khammuane	77.8	83.0	89.8	90.3	93.8	90.7	76.7	66.1	77.1	81.1	92.4	81.4
Savannakhet	65.4	76.7	86.7	84.8	86.9	83.0	60.7	80.5	89.5	89.3	93.3	86.6
Saravane	66.7	86.9	87.4	92.9	95.3	90.8	50.0	-	81.9	-	-	93.6
Sekong	64.0	74.0	79.2	79.0	86.4	78.6	-	-	-	91.7	95.4	96.2
Champasack	79.3	93.0	91.0	90.5	92.4	90.6	56.7	94.6	85.2	92.5	95.7	91.9
Attapeu	64.4	83.6	86.6	94.4	95.3	88.4	-	-	-	90.1	-	96.5
Xaysomboun SR	46.1	70.9	89.1	60.7	88.2	66.8	-	66.7	71.4	50.0	73.3	67.7
Total	81.3	86.0	90.8	90.6	94.8	91.0	86.7	90.2	92.5	93.8	96.0	93.3
Rural:												
Vientiane City	72.7	87.7	81.2	88.6	93.7	88.0	73.1	90.7	94.7	91.3	95.2	91.9
Phongsaly	28.1	37.0	51.1	57.2	48.9	41.0	40.3	39.7	44.7	46.6	66.6	42.8
Luangnamtha	23.8	24.8	28.1	30.6	32.1	27.2	41.1	49.2	35.0	34.5	48.8	40.9
Oudomxay	45.7	53.6	57.2	55.5	68.6	51.3	42.4	56.3	57.8	65.9	72.2	56.0
Bokeo	38.1	44.4	55.4	49.7	60.4	49.5	44.5	46.4	65.4	68.6	73.3	63.3
Luangprabang	47.1	62.9	53.1	68.3	68.3	60.3	51.1	64.4	70.0	78.5	80.7	67.7
Huaphanh	48.7	57.9	69.3	56.8	65.7	55.5	58.2	68.9	76.2	83.6	69.7	68.8
Xayabury	80.7	74.2	74.4	77.1	85.8	79.4	66.1	82.1	89.1	93.4	95.6	88.6
Xiengkhuang	71.9	77.0	73.6	71.2	69.6	72.7	60.0	71.1	73.0	81.1	75.3	70.3
Vientiane	67.0	67.0	72.7	82.8	87.2	77.4	76.0	82.4	82.7	90.2	94.6	87.2
Borikhamxay	57.3	69.3	73.8	78.6	87.1	76.0	56.7	74.8	90.5	91.2	93.4	81.5
Khammuane	62.4	71.8	75.5	71.0	85.4	72.7	61.1	61.6	74.5	74.3	76.5	69.7
Savannakhet	49.9	57.3	71.6	69.9	79.5	64.7	53.9	69.8	74.9	72.9	76.2	67.9
Saravane	42.3	53.8	61.2	67.6	64.6	57.6	57.3	61.5	66.5	61.7	64.5	61.3
Sekong	46.8	49.5	45.0	46.6	51.8	47.8	59.7	69.3	73.1	59.4	71.6	66.7
Champasack	60.9	69.0	70.0	75.0	75.2	70.6	85.9	82.2	87.3	82.0	84.8	84.3
Attapeu	48.1	67.4	65.6	83.5	85.8	67.7	71.8	77.4	82.6	85.7	92.2	79.9
Xaysomboun SR	59.7	60.8	48.6	65.8	63.7	59.6	67.5	66.5	79.7	72.1	71.7	71.7
Total	50.3	61.2	67.3	71.1	78.1	65.4	57.0	68.1	74.2	77.6	82.8	71.8

Source: LECS2, 1997/8 and LECS3, 2002/3.

Note: Literacy is defined as the percent of the population 18 to 60 who say they can read or write with or without difficulty. Quintiles are defined for each respective survey year. "-" means there are insufficient observations to compute the figure.

Table A3: Gross primary enrollment rates in East Asia, 1990-2001

	Total		Male		Female	
	1990	2001	1990	2001	1990	2001
Laos	62.6	82.8	67.4	86.1	57.6	74.4
Cambodia	66.6	86.2	72.6	89.0	60.6	83.2
Malaysia	93.7	95.2	93.9	95.1	93.5	95.3
Thailand	75.9	86.3	76.9	87.5	74.8	85.1
Vietnam	90.5	94.0	94.4	98.4	86.5	92.2

Source: UNESCO data (<http://globalis.gvu.unu.edu>).

Table A4: Net and gross primary enrollment rates for children aged 6 to 12 by location and quintile, Lao PDR 2002/3

Laos 1 DK 2002/3

	Urban						Total	Rural						Total
	National consumption per capita quintiles					National consumption per capita quintiles								
	1	2	3	4	5	1		2	3	4	5			
Net Primary E. R. :														
Region:														
- Vientiane	74.3	85.1	80.0	75.5	74.1	76.7	86.1	77.0	92.3	81.1	86.9	84.9		
- North	76.0	74.4	86.7	82.0	75.7	78.2	46.4	60.1	67.1	71.2	71.7	61.4		
- Center	81.3	74.8	84.4	75.3	80.4	79.1	61.4	69.5	76.1	77.6	77.3	71.2		
- South	63.3	82.9	90.3	74.4	81.4	80.5	55.4	61.1	68.7	75.5	81.3	67.2		
Priority districts:														
- 1st Priority	69.4	81.0	90.9	86.8	83.9	81.1	48.1	61.9	68.2	67.9	72.7	60.2		
- 2nd Priority	-	55.7	61.5	52.3	70.5	62.6	50.5	60.4	70.2	76.9	72.7	63.0		
- Non Priority	79.1	78.8	84.3	76.5	77.4	78.8	61.8	66.9	73.3	76.5	79.2	71.3		
Altitude:														
- Low land	76.5	77.7	83.9	76.9	78.5	78.7	63.4	68.3	75.0	76.5	79.0	71.8		
- Mixed	75.7	68.2	79.9	68.7	64.6	70.6	44.3	65.7	76.0	82.1	83.6	68.6		
- High land	-	-	-	84.8	88.9	92.1	49.4	58.8	62.1	65.5	66.8	58.5		
Gross Primary E. R. :														
Region:														
- Vientiane	83.2	104.8	90.9	83.0	80.2	85.7	108.4	84.8	106.1	88.5	96.2	96.2		
- North	86.6	96.5	109.9	91.1	83.0	91.9	64.6	76.6	83.2	86.6	83.9	77.6		
- Center	99.8	83.1	101.6	86.6	85.3	89.8	73.5	83.8	88.0	90.7	91.9	84.2		
- South	77.3	94.8	96.5	78.4	84.6	86.7	66.4	77.0	78.9	85.5	89.1	78.4		
Priority districts:														
- 1st Priority	94.8	103.5	116.1	94.1	90.4	98.7	66.0	79.2	84.5	87.0	83.2	77.3		
- 2nd Priority	-	79.1	61.5	56.0	75.8	72.8	62.3	79.1	85.1	88.5	83.3	76.6		
- Non Priority	87.8	90.9	98.0	85.6	82.7	87.8	74.2	80.1	84.7	88.2	91.1	83.5		
Altitude:														
- Low land	83.7	90.4	97.3	86.7	83.6	87.6	75.3	82.2	85.7	89.0	89.2	83.7		
- Mixed	106.2	89.7	89.8	70.7	69.5	85.7	62.1	84.5	93.0	96.2	94.7	84.7		
- High land	-	-	-	95.2	100.9	109.5	64.9	74.4	76.8	79.6	81.6	73.5		

Source: LECS3, 2002/3.

Note: The denominator is total number of children aged 6-12. "-" means no or not enough observations to compute the figure.

Table A5: Net and gross primary enrollment rates by province, national quintiles, and urban/rural location, 2002/3

Urban/Rural location, 2002/3												
Provinces	Net Primary Enrollment Rate						Gross Primary Enrollment Rate					
	National consumption per capita quintiles					Total	National consumption per capita quintiles					Total
	1	2	3	4	5		1	2	3	4	5	
National:												
Vientiane City	78.2	82.0	83.6	76.7	76.6	78.8	91.5	97.2	95.4	84.1	83.3	88.4
Phongsaly	44.6	57.4	59.4	67.7	68.4	55.3	64.6	73.9	83.4	100.2	135.4	77.4
Luangnamtha	41.9	53.0	38.6	47.3	55.3	46.6	47.5	73.7	63.2	59.2	80.4	64.5
Oudomxay	38.8	47.3	63.0	69.2	84.2	54.7	61.9	69.7	83.1	88.8	96.5	75.6
Bokeo	46.4	59.6	51.9	61.9	80.1	58.2	62.6	70.5	65.6	71.9	100.6	71.6
Luangprabang	53.1	71.3	76.4	78.8	74.5	69.3	74.1	86.2	90.1	96.0	82.6	85.1
Huaphanh	49.5	64.6	79.8	79.7	57.8	64.2	64.5	85.8	96.9	94.5	66.4	80.4
Xayabury	64.5	69.0	83.7	79.4	77.9	75.4	71.9	80.7	92.5	85.7	83.0	83.1
Xiengkhuang	69.2	66.3	68.2	75.6	71.7	69.9	84.9	85.9	77.4	88.4	82.1	83.9
Vientiane	79.8	83.5	80.8	80.9	80.5	81.3	90.7	90.3	88.0	88.7	88.6	89.0
Borikhamxay	81.4	81.9	93.4	84.4	83.9	84.7	95.6	97.6	116.7	96.7	99.5	100.9
Khammuane	69.3	66.3	73.3	74.8	71.3	70.9	81.6	78.7	89.4	86.0	80.6	83.5
Savannakhet	55.0	63.8	76.7	74.2	80.1	67.0	67.0	77.4	89.8	89.5	93.5	80.3
Saravane	45.2	52.4	63.2	66.1	62.3	53.3	55.2	64.7	74.4	84.2	76.5	65.3
Sekong	47.9	60.0	76.9	78.2	57.6	63.0	71.1	81.4	103.9	92.4	77.0	84.8
Champasack	73.4	72.6	74.9	77.4	84.2	77.6	78.6	86.7	80.3	81.5	89.3	84.0
Attapeu	64.0	67.1	60.8	72.3	94.2	68.4	83.0	95.2	83.2	109.4	103.4	91.5
Xaysomboun SR	84.6	80.6	78.9	82.0	87.1	82.1	97.9	93.6	85.4	103.8	90.8	93.8
Total	57.1	66.4	73.5	75.2	77.4	69.2	71.3	81.6	86.8	87.4	86.7	79.8
Urban:												
Vientiane City	74.3	85.1	80.0	75.5	74.1	76.7	83.2	104.8	90.9	83.0	80.2	85.7
Phongsaly	90.6	89.5	96.2	74.9	100.0	89.5	99.9	110.5	155.2	91.6	256.2	122.1
Luangnamtha	100.0	85.4	100.0	88.0	100.0	91.2	100.0	129.1	150.7	93.6	133.2	116.2
Oudomxay	49.7	65.4	80.0	75.0	85.7	68.4	66.5	83.2	100.8	94.7	93.0	84.8
Bokeo	79.4	68.8	84.5	72.3	100.0	78.4	98.4	68.9	84.4	72.3	117.9	83.4
Luangprabang	85.6	80.4	100.0	92.3	71.3	82.3	100.0	120.0	100.0	114.8	71.3	96.9
Huaphanh	91.7	100.0	100.0	86.9	68.5	82.9	108.3	175.0	100.0	86.9	68.5	93.8
Xayabury	67.4	66.1	75.4	81.6	74.6	72.4	67.4	73.9	88.4	81.6	83.9	78.5
Xiengkhuang	92.2	90.4	87.4	90.4	77.0	85.1	100.0	90.4	103.1	107.1	84.7	95.6
Vientiane	80.3	86.7	82.9	83.1	83.3	83.8	100.7	100.0	82.9	83.1	87.1	90.6
Borikhamxay	100.0	88.7	100.0	89.3	79.6	89.0	112.6	90.9	149.4	100.0	89.5	103.8
Khammuane	80.2	69.5	70.8	67.8	68.7	70.3	80.2	83.7	83.7	77.5	72.1	78.1
Savannakhet	70.0	68.9	82.9	68.5	87.5	76.0	100.8	74.9	95.6	79.9	89.9	87.3
Saravane	-	91.4	83.0	80.0	58.0	78.2	-	100.0	90.8	99.5	58.0	86.6
Sekong	69.2	100.0	76.6	86.4	86.6	83.6	92.7	116.5	90.1	89.1	110.2	98.0
Champasack	56.0	80.9	95.0	74.9	82.2	81.3	68.9	95.0	100.1	74.9	82.2	85.3
Attapeu	100.0	66.7	50.0	32.8	100.0	70.6	100.0	66.7	50.0	50.0	125.0	83.5
Xaysomboun SR	-	62.5	100.0	-	100.0	82.4	-	75.0	100.0	-	100.0	88.2
Total	76.7	77.6	84.3	76.7	77.6	78.4	90.2	92.6	98.9	85.4	83.0	88.7
Rural:												
Vientiane City	86.1	77.0	92.3	81.1	86.9	84.9	108.4	84.8	106.1	88.5	96.2	96.2
Phongsaly	40.3	54.3	53.7	65.9	62.9	51.0	61.4	70.3	72.3	102.2	114.2	71.9
Luangnamtha	35.9	45.5	34.2	38.6	50.9	40.1	42.2	60.9	57.0	51.8	75.3	57.0
Oudomxay	37.4	43.7	62.3	67.8	83.3	52.5	61.3	67.0	82.4	87.4	98.5	74.1
Bokeo	42.9	57.7	50.2	60.1	76.5	55.7	58.8	70.8	64.6	71.8	97.5	70.1
Luangprabang	50.4	70.7	75.7	77.6	75.3	68.1	72.0	83.8	89.8	94.3	85.3	84.0
Huaphanh	45.7	63.1	79.0	78.6	49.4	62.0	60.5	82.0	96.8	95.7	64.8	78.8
Xayabury	63.6	70.1	85.4	79.0	78.8	76.1	73.1	83.3	93.3	86.4	82.8	84.3
Xiengkhuang	66.8	64.7	64.9	71.5	67.0	66.7	83.4	85.6	72.9	83.4	79.8	81.5
Vientiane	79.8	83.1	80.6	80.9	80.0	81.0	89.6	89.1	88.4	88.9	88.9	88.9
Borikhamxay	74.3	80.4	91.1	81.6	91.0	82.6	89.1	99.1	105.7	94.9	115.9	99.4
Khammuane	68.1	65.3	73.5	76.4	73.5	71.1	81.8	77.2	90.0	87.8	87.8	84.8
Savannakhet	53.6	62.8	75.3	76.5	75.3	64.9	63.8	77.9	88.4	93.4	95.8	78.6
Saravane	45.0	50.7	61.3	64.3	63.3	52.0	55.1	63.2	72.8	82.1	80.9	64.1
Sekong	45.1	56.4	76.9	72.4	41.7	58.3	68.3	78.3	106.1	94.7	58.8	81.7
Champasack	75.5	71.2	71.7	77.8	84.7	76.9	79.7	85.3	77.2	82.5	91.1	83.7
Attapeu	63.3	67.1	61.2	79.2	92.4	68.2	82.7	97.4	84.3	119.8	96.7	92.2
Xaysomboun SR	84.6	84.7	78.5	81.6	83.4	82.0	97.9	97.7	85.1	103.9	88.2	94.3
Total	54.7	64.4	71.5	74.8	77.3	67.0	69.0	79.7	84.7	88.0	88.9	80.8

Source: LECS3, 2002/3.

Note: The denominator is total number of children aged 6-12. "-" means no or not enough observations to compute the figure.

Table A6: Net and gross lower secondary enrollment rates for children aged 12 to 15 by location and quintile, Lao PDR 2002/3

	Urban					Total	Rural					Total
	National consumption per capita quintiles						National consumption per capita quintiles					
	1	2	3	4	5		1	2	3	4	5	
Net Lower Secondary E. R. :												
Region:												
- Vientiane	39.4	45.7	50.9	56.2	60.2	54.1	26.6	42.2	58.1	68.7	58.4	53.9
- North	28.5	37.0	31.1	60.6	56.3	44.0	3.7	9.8	15.0	22.2	31.8	15.1
- Center	15.3	42.4	40.0	50.5	54.8	43.7	15.6	24.3	32.4	39.3	43.1	30.3
- South	5.8	44.1	38.3	54.6	59.2	49.2	8.2	8.4	35.5	37.1	40.2	25.3
Priority districts:												
- 1st Priority	23.0	23.8	45.7	57.5	48.0	38.2	6.5	9.8	20.4	22.1	29.1	14.7
- 2nd Priority	-	-	36.7	40.4	70.3	42.4	5.7	13.4	25.8	32.4	34.8	19.6
- Non Priority	26.8	46.0	41.0	55.0	58.0	49.5	13.5	21.5	30.4	37.4	43.0	30.2
Altitude:												
- Low land	25.3	48.7	42.3	52.4	58.1	49.3	14.2	19.9	34.1	41.3	46.4	31.7
- Mixed	20.7	25.3	45.7	75.3	57.8	44.5	5.2	15.7	26.0	26.2	35.4	20.6
- High land	-	-	-	40.4	59.9	32.8	6.3	11.3	16.7	22.0	23.6	14.4
Gross Lower Secondary E. R. :												
Region:												
- Vientiane	61.3	64.6	66.2	83.2	77.5	74.1	39.0	50.5	76.8	103.0	74.2	72.4
- North	47.9	53.3	49.5	88.2	74.1	63.6	8.2	18.2	25.8	31.8	46.3	24.1
- Center	19.9	50.0	57.0	70.9	84.7	62.1	24.7	39.4	46.8	56.5	59.7	44.7
- South	19.5	46.5	49.9	81.9	78.4	66.1	13.4	15.9	48.7	53.1	57.3	36.9
Priority districts:												
- 1st Priority	38.9	35.5	63.6	95.6	65.3	58.5	11.6	16.9	32.7	30.9	41.5	23.0
- 2nd Priority	-	27.1	48.3	55.8	101.1	62.5	10.2	22.9	39.7	49.1	45.5	29.9
- Non Priority	41.0	58.9	57.2	78.4	79.2	68.3	21.8	35.2	43.5	53.8	60.4	44.3
Altitude:												
- Low land	38.9	63.6	59.6	76.2	80.1	69.0	22.5	33.3	49.0	59.0	65.3	46.5
- Mixed	38.8	37.7	58.2	111.3	77.3	64.9	7.8	27.1	38.0	37.7	47.0	30.3
- High land	-	-	-	68.3	65.5	41.9	12.8	17.7	26.7	33.6	34.8	23.0

Source: LECS3, 2002/3.

Note: The denominator is total number of children aged 12-15. "-" means no or not enough observations to compute the figure.

Table A7: Net and gross lower secondary enrollment rates by province, 2002/3

Provinces	Net Lower Secondary Enrollment Rate						Gross Lower Secondary Enrollment Rate					
	National consumption per capita quintiles					Total	National consumption per capita quintiles					Total
	1	2	3	4	5		1	2	3	4	5	
National:												
Vientiane City	35.6	44.4	52.7	59.1	59.8	54.0	54.6	59.4	68.8	87.8	76.8	73.6
Phongsaly	1.6	7.9	10.5	10.9	12.6	7.4	4.5	11.6	13.6	16.0	12.6	10.7
Luangnamtha	15.3	16.3	9.6	20.1	29.5	18.0	34.3	41.0	19.1	38.7	49.2	35.6
Oudomxay	6.5	11.3	11.5	20.8	33.9	13.5	19.9	20.3	23.7	39.2	59.3	27.5
Bokeo	21.9	43.1	1.9	39.5	37.3	26.1	32.8	74.0	10.8	63.6	55.5	43.6
Luangprabang	4.2	9.7	12.4	23.4	39.2	16.8	7.4	16.0	26.3	33.8	56.7	26.2
Huaphanh	6.8	11.4	30.8	36.2	47.7	22.7	12.9	18.8	48.6	45.5	74.4	34.5
Xayabury	12.2	31.9	30.3	36.6	43.4	32.8	16.0	46.6	43.6	45.8	51.9	42.6
Xiengkhuang	16.2	28.8	40.9	39.7	54.8	34.5	21.3	36.7	60.0	59.8	71.1	47.8
Vientiane	36.5	30.9	41.1	53.6	58.2	47.2	55.3	43.6	59.6	75.8	79.2	66.3
Borikhamxay	24.0	29.3	24.7	53.1	28.0	32.8	31.1	47.4	41.0	73.9	74.5	55.8
Khammuane	21.9	25.6	22.5	33.8	47.6	30.0	27.8	38.3	43.7	47.6	68.8	45.4
Savannakhet	8.6	25.4	37.2	37.5	41.4	28.6	17.4	40.7	46.4	52.4	55.2	40.8
Saravane	5.9	6.7	29.5	28.6	42.0	16.4	10.8	11.7	40.6	42.9	50.6	24.0
Sekong	6.2	4.0	25.2	32.2	25.3	17.0	20.4	31.2	41.5	47.3	34.8	34.1
Champasack	7.5	12.5	43.5	44.7	46.2	36.4	7.5	18.8	55.0	62.6	63.4	49.4
Attapeu	18.9	29.1	13.5	32.1	45.7	27.4	31.4	34.1	40.5	57.7	87.4	46.8
Xaysomboun SR	31.3	26.3	16.0	28.0	28.4	25.6	41.9	40.6	33.1	51.9	42.1	42.7
Total	12.0	21.5	30.5	39.3	47.1	30.5	19.7	32.8	44.2	56.7	65.2	44.2
Urban:												
Vientiane City	39.4	45.7	50.9	56.2	60.2	54.1	61.3	64.6	66.2	83.2	77.5	74.1
Phongsaly	50.4	13.4	4.3	48.4	25.9	18.6	75.2	13.4	4.2	77.5	25.9	23.9
Luangnamtha	49.9	31.6	32.9	67.5	52.5	46.7	74.9	68.3	79.6	146.8	70.2	87.7
Oudomxay	17.6	40.3	-	47.0	63.5	38.8	53.7	48.9	49.5	101.4	90.3	72.8
Bokeo	66.7	53.9	-	90.5	50.0	58.9	82.7	81.3	-	100.0	68.7	74.4
Luangprabang	50.0	35.2	-	43.9	58.0	48.7	100.0	61.4	-	58.2	68.3	66.6
Huaphanh	20.0	-	100.0	82.6	61.5	57.7	40.0	-	200.0	82.6	92.3	85.9
Xayabury	21.7	50.9	40.5	50.3	53.5	42.3	27.2	62.0	52.0	63.4	64.5	52.3
Xiengkhuang	40.6	60.4	58.6	39.7	60.9	52.0	53.5	60.4	70.4	85.3	75.3	73.6
Vientiane	24.6	37.4	47.5	48.2	73.5	53.6	24.6	50.2	65.0	74.1	84.9	66.9
Borikhamxay	26.1	58.8	25.6	59.8	26.8	38.3	26.1	92.6	51.2	69.7	101.7	72.0
Khammuane	27.9	25.0	24.9	63.9	60.5	45.6	27.9	24.9	47.4	71.0	93.0	63.9
Savannakhet	-	46.9	42.1	48.4	55.7	40.9	6.0	51.9	52.9	66.5	72.4	52.7
Saravane	-	63.7	88.2	50.2	100.0	70.8	-	63.6	124.6	83.8	125.2	95.2
Sekong	40.8	42.6	32.6	68.5	39.1	47.4	137.0	85.2	74.1	84.7	58.4	78.8
Champasack	-	24.6	21.7	55.1	56.7	41.8	-	24.6	21.7	82.4	73.6	54.3
Attapeu	-	85.7	-	49.4	56.0	61.7	-	85.7	-	74.7	83.5	81.4
Xaysomboun SR	-	-	-	-	-	-	-	-	-	-	-	50.0
Total	25.4	41.6	41.5	55.1	57.8	47.9	39.9	54.5	57.7	80.2	79.0	66.9
Rural:												
Vientiane City	26.6	42.2	58.1	68.7	58.4	53.9	39.0	50.5	76.8	103.0	74.2	72.4
Phongsaly	-	6.6	12.3	3.0	7.3	5.3	2.2	11.2	16.2	3.0	7.3	8.2
Luangnamtha	7.5	10.6	6.0	10.0	20.7	10.7	25.1	30.8	9.7	15.6	41.2	22.2
Oudomxay	4.6	4.3	12.2	11.9	-	7.9	14.0	13.4	22.1	18.2	23.7	17.3
Bokeo	10.0	34.4	2.1	19.7	34.5	16.7	19.6	68.0	12.0	49.5	52.6	34.8
Luangprabang	2.0	5.0	9.6	21.9	30.8	12.6	3.0	7.7	24.5	31.9	51.5	20.9
Huaphanh	5.6	11.9	27.4	25.3	30.4	16.7	10.4	17.4	41.0	36.7	52.1	25.8
Xayabury	5.7	20.0	25.5	35.0	40.6	29.4	8.4	37.1	39.8	43.7	48.4	39.2
Xiengkhuang	13.2	26.7	35.5	39.7	49.1	29.5	17.3	35.2	56.8	49.0	67.2	40.6
Vientiane	38.3	29.8	40.1	53.9	55.6	46.3	59.9	42.6	58.8	75.9	78.1	66.3
Borikhamxay	22.6	24.9	24.2	47.9	29.3	29.8	34.5	40.8	34.7	77.0	44.8	46.8
Khammuane	21.0	25.8	22.0	27.4	36.0	25.5	27.8	41.7	43.1	42.7	47.1	39.9
Savannakhet	10.0	20.4	35.6	33.3	35.7	25.2	19.2	38.1	44.3	47.0	48.4	37.4
Saravane	5.9	2.9	23.5	22.2	28.8	11.8	10.9	8.3	32.0	31.0	33.6	17.8
Sekong	3.0	-	24.5	-	12.1	9.7	9.6	25.6	38.3	14.2	12.1	23.4
Champasack	8.9	10.7	46.7	43.0	43.2	35.4	8.9	18.0	59.9	59.5	60.5	48.5
Attapeu	18.9	20.5	13.5	27.2	38.3	21.8	31.4	26.2	40.5	52.9	90.2	41.1
Xaysomboun SR	31.3	31.8	16.0	29.3	28.4	27.0	41.9	49.2	20.8	54.3	42.1	42.3
Total	9.5	16.5	27.5	33.5	40.2	24.7	16.0	27.4	40.4	48.3	56.3	36.7

Source: LECS3, 2002/3.

Note: The denominator is total number of children aged 12-15. "-" means no or not enough observations to compute the figure.

Table A8: Children aged 10-18 who never attended school, by province (%)

Provinces	National consumption per capita quintiles					Total
	1	2	3	4	5	
National:						
Vientiane City	10.0	5.2	4.0	3.0	3.8	4.3
Phongsaly	54.3	56.1	47.7	45.8	23.6	50.6
Luangnamtha	55.3	46.9	58.0	53.5	49.9	52.8
Oudomxay	55.6	46.7	42.1	33.6	19.3	42.6
Bokeo	49.6	49.9	32.9	31.0	25.0	34.7
Luangprabang	45.4	31.6	28.4	20.5	14.7	28.8
Huaphanh	38.9	29.4	21.0	14.4	17.7	27.3
Xayabury	24.7	9.5	8.6	6.0	4.1	8.9
Xiengkhuang	35.5	29.2	21.3	16.5	18.1	25.1
Vientiane	29.1	16.8	16.6	10.6	5.8	12.9
Borikhamxay	36.4	24.7	8.8	12.1	4.8	15.3
Khammuane	38.5	38.9	26.0	25.9	17.2	28.9
Savannakhet	45.7	31.8	24.0	24.4	17.5	29.7
Saravane	45.0	37.8	31.5	31.2	28.9	37.0
Sekong	40.9	36.7	31.3	33.2	33.4	35.5
Champasack	16.3	14.2	13.8	18.0	13.5	14.9
Attapeu	29.0	22.8	21.2	14.2	8.4	20.3
Xaysomboun SR	32.9	32.0	18.9	28.8	27.2	27.8
Total	39.4	28.6	22.6	18.7	12.2	23.4
Rural:						
Vientiane City	29.6	9.3	5.7	8.7	6.9	9.2
Phongsaly	57.1	59.3	55.0	54.3	30.7	56.1
Luangnamtha	61.3	55.5	65.8	63.4	54.6	60.5
Oudomxay	58.8	50.1	44.9	39.8	27.8	47.5
Bokeo	55.9	57.4	34.9	33.6	27.3	38.0
Luangprabang	46.5	34.6	29.5	21.4	20.0	31.5
Huaphanh	40.6	30.8	22.9	16.8	30.1	30.5
Xayabury	34.7	14.8	11.3	5.4	3.9	10.6
Xiengkhuang	39.1	27.5	25.6	20.6	24.7	29.1
Vientiane	28.9	18.0	16.9	10.6	5.4	13.4
Borikhamxay	49.4	27.7	14.4	15.5	7.3	22.6
Khammuane	39.9	40.4	26.0	27.5	23.1	31.3
Savannakhet	46.3	33.4	26.5	29.7	23.7	33.6
Saravane	45.0	38.7	33.5	34.8	35.6	39.0
Sekong	44.9	39.1	35.0	45.7	43.3	41.1
Champasack	14.2	15.6	13.6	19.6	16.1	16.2
Attapeu	29.9	23.8	23.5	16.5	13.3	23.0
Xaysomboun SR	32.9	33.5	17.8	27.2	25.5	27.3
Total	43.3	32.9	26.6	23.5	17.9	29.0
Urban (total)	14.0	11.0	8.3	6.3	4.5	7.3

Source: LECS3, 2002/3.

Table A9: Children aged 10-18 who never attended school, by region (%)

	Urban						Total	Rural						Total
	National consumption per capita quintiles					National onsumption per capita quintiles								
	1	2	3	4	5	1		2	3	4	5			
Net Primary E. R. :														
Region:														
- Vientiane	4.4	3.8	3.5	1.4	3.0	2.9	29.6	9.3	5.7	8.7	6.9	9.2		
- North	14.0	11.8	6.7	9.9	5.6	9.2	48.3	40.5	34.6	26.6	21.0	35.0		
- Center	24.8	22.0	12.6	10.6	6.9	12.5	42.6	30.9	23.3	22.2	16.8	27.7		
- South	25.6	6.9	12.5	7.9	3.8	7.7	36.0	27.7	22.2	23.4	19.4	25.5		
Priority districts:														
- 1st Priority	20.1	17.5	10.0	12.6	12.5	15.0	53.2	41.3	35.7	32.1	27.2	40.8		
- 2nd Priority	-	26.7	27.0	16.4	12.3	18.8	43.7	32.7	23.6	25.4	19.7	30.6		
- Non Priority	11.3	9.1	7.4	5.4	3.6	5.9	34.3	27.7	23.3	20.7	15.8	23.4		
Altitude:														
- Low land	10.0	9.5	7.5	5.3	3.9	6.0	35.1	26.6	21.1	19.5	14.0	22.5		
- Mixed	26.8	22.1	14.0	12.2	10.0	16.7	50.2	27.7	22.9	19.3	17.9	28.0		
- High land	-	-	-	13.0	7.4	9.1	48.7	44.6	38.9	35.1	30.4	41.1		

Source: LECS3, 2002/3.

Note: "-" means no or not enough observations to compute the figure.

Table A10: Ever attended preschool, children aged 6-18, by province (%)

Provinces	National consumption per capita quintiles					Total
	1	2	3	4	5	
National:						
Vientiane City	16.4	14.7	14.2	20.0	31.8	22.3
Phongsaly	2.1	2.7	8.1	0.0	4.7	3.5
Luangnamtha	0.0	8.3	6.7	3.5	5.5	5.4
Oudomxay	3.8	5.0	3.2	5.6	23.6	6.2
Bokeo	6.2	4.5	2.9	3.9	9.7	4.8
Luangprabang	1.7	6.2	5.1	11.3	17.5	8.2
Huaphanh	0.0	0.4	0.4	11.8	58.5	10.6
Xayabury	8.5	7.3	15.3	16.5	24.4	15.7
Xiengkhuang	0.0	2.2	5.4	2.9	11.0	3.9
Vientiane	2.6	1.5	4.7	1.6	14.2	6.0
Borikhamxay	0.0	3.6	2.2	19.0	19.5	9.9
Khammuane	1.5	0.9	4.4	12.2	19.4	7.9
Savannakhet	10.9	14.0	12.4	16.2	15.6	13.7
Saravane	0.5	2.4	10.6	3.3	0.0	3.7
Sekong	1.0	3.6	10.8	6.0	6.0	5.8
Champasack	4.8	3.3	5.6	10.6	14.5	9.3
Attapeu	5.8	2.8	9.1	0.0	11.0	5.2
Xaysomboun SR	0.0	0.0	1.8	1.3	4.4	1.4
Total	4.9	6.2	7.9	11.4	20.5	10.7
Urban	13.3	14.3	18.4	25.2	36.0	24.9
Rural	3.2	4.0	4.7	6.1	9.5	5.4

Source: LECS3, 2002/3.

Table A11: Ever attended preschool, children aged 6-18, by region (%)

	Urban						Rural					
	National consumption per capita quintiles					Total	National consumption per capita quintiles					Total
	1	2	3	4	5		1	2	3	4	5	
Region:												
- Vientiane	24.1	20.5	18.7	23.4	36.2	27.1	0.0	2.4	0.6	7.9	16.6	7.6
- North	9.5	16.1	14.9	25.9	54.7	27.3	1.7	1.6	5.0	7.2	10.6	5.0
- Center	3.6	9.9	15.1	31.0	31.0	21.9	5.9	6.5	5.4	4.6	7.0	5.8
- South	41.3	1.7	33.9	15.3	21.0	20.4	0.9	3.1	3.6	7.0	9.8	5.1
Priority districts:												
- 1st Priority	12.0	6.3	28.4	19.3	24.0	16.9	1.0	1.7	2.9	3.5	8.8	2.8
- 2nd Priority	-	16.7	7.3	32.5	52.1	31.1	0.0	1.7	3.3	6.7	12.2	4.0
- Non Priority	14.1	15.8	17.6	25.9	36.1	25.7	5.8	5.9	5.7	6.8	9.3	6.8
Altitude:												
- Low land	13.9	17.6	16.8	26.5	36.2	26.0	5.1	5.9	6.7	9.3	13.1	8.2
- Mixed	10.0	5.5	21.6	17.8	35.9	18.1	2.0	1.3	3.9	2.2	3.4	2.6
- High land	-	-	-	0.0	27.2	16.9	1.1	2.3	0.9	1.7	3.0	1.7

Source: LECS3, 2002/3

Note: "-" means no or not enough observations to compute the figure.

Table A12: Reason by age for never having attended school, ages 6 to 18, Lao PDR (%)

Table A12. Reason by age for never having attended school, ages 6 to 18, Lao PDR (%)										
Age (year)	Reason for never attended school *									% of total age group never attending school
	1	2	3	4	5	6	7	8	9	
National										
6	76.6	0.3	10.8	1.6	8.6	0.5	0.1	0.3	1.2	53.4
7	58.2	1.6	20.7	2.3	12.0	1.2	1.9	0.2	1.9	32.6
8	35.0	0.5	34.3	6.3	16.9	1.5	3.0	0.2	2.4	23.5
9	27.7	1.6	31.9	9.5	18.3	3.6	2.9	0.5	4.1	14.4
10	13.7	0.7	33.9	8.9	28.0	2.2	6.9	1.4	4.4	12.3
11	7.7	1.8	39.2	10.9	25.4	6.6	2.0	1.2	5.1	7.5
12	5.2	1.4	40.1	9.9	29.5	2.9	4.3	1.0	5.6	11.3
13	2.2	1.4	39.8	17.7	31.1	1.8	0.6	1.6	3.8	9.2
14	1.6	1.7	49.0	14.0	19.3	2.1	2.6	0.4	9.2	8.9
15	5.6	1.1	39.3	17.3	25.3	1.4	3.2	1.5	5.2	11.5
16	0.0	3.1	42.1	15.2	28.6	3.9	1.2	0.9	5.0	9.9
17	1.6	1.3	36.2	20.7	24.4	4.5	4.3	1.6	5.5	12.5
18	2.7	1.1	27.8	15.3	38.5	4.0	4.0	0.8	5.8	17.0
Urban										
6	95.6	0.0	3.2	0.0	1.2	0.0	0.0	0.0	0.0	3.8
7	70.4	6.0	11.8	0.0	1.8	0.0	7.4	0.0	2.6	2.5
8	60.8	0.0	26.6	0.0	6.0	0.0	6.7	0.0	0.0	1.5
9	68.0	0.0	13.4	18.6	0.0	0.0	0.0	0.0	0.0	0.5
10	35.1	0.0	19.4	13.0	13.4	0.0	19.1	0.0	0.0	0.5
11	0.0	0.0	51.4	0.0	48.6	0.0	0.0	0.0	0.0	0.1
12	17.8	17.0	29.7	0.0	8.0	0.0	12.6	0.0	14.8	0.7
13	0.0	0.0	38.5	25.0	0.0	0.0	0.0	13.3	23.2	0.5
14	0.0	0.0	65.5	0.0	0.0	0.0	0.0	0.0	34.5	0.5
15	0.0	0.0	25.0	55.5	0.0	0.0	0.0	0.0	19.4	0.5
16	0.0	0.0	47.3	18.4	6.5	0.0	0.0	0.0	27.9	0.7
17	0.0	0.0	54.0	20.6	0.0	0.0	0.0	0.0	25.6	0.6
18	6.2	0.0	6.2	33.6	32.7	5.8	0.0	0.0	15.5	1.0
Rural										
6	75.1	0.3	11.3	1.7	9.2	0.5	0.1	0.3	1.3	58.2
7	57.2	1.2	21.4	2.5	12.8	1.3	1.4	0.2	1.9	36.7
8	33.3	0.5	34.8	6.7	17.6	1.6	2.7	0.2	2.6	26.9
9	26.3	1.6	32.6	9.2	18.9	3.7	3.0	0.5	4.3	17.1
10	12.7	0.7	34.6	8.7	28.7	2.3	6.3	1.4	4.6	14.6
11	7.8	1.8	39.0	11.1	25.1	6.7	2.1	1.2	5.2	9.5
12	4.4	0.4	40.7	10.6	30.9	3.1	3.8	1.1	5.0	13.6
13	2.3	1.5	39.9	17.2	33.0	1.9	0.6	0.9	2.6	11.4
14	1.7	1.9	48.0	14.9	20.5	2.2	2.8	0.4	7.6	11.2
15	5.9	1.2	39.9	15.5	26.5	1.5	3.3	1.6	4.6	15.3
16	0.0	3.3	41.6	15.0	30.4	4.2	1.3	0.9	3.2	12.5
17	1.7	1.3	35.3	20.7	25.5	4.7	4.5	1.7	4.6	16.6
18	2.5	1.1	29.1	14.2	38.8	3.9	4.3	0.9	5.2	21.7

Source: LECS3, 2002/3.

Note: * 1=Too young; 2=Too expensive; 3=No interest; 4=Had to work; 5=School too far;
6=No teachers/supplies; 7=Illness; 8=Language; 9=Other.

Table A13: Reasons for never having attended school, ages 9 to 18, Lao PDR (%)

	Reason for never attended school *)									% of population never attending school
	1	2	3	4	5	6	7	8	9	
Province:										
Vientiane City	17	7	9	28	0	0	8	0	31	1.1
Phongsaly	7	3	40	17	21	12	0	0	0	32.3
Luangnamtha	3	0	41	3	45	7	0	0	1	34.7
Oudomxay	9	1	42	25	13	1	3	1	3	21.4
Bokeo	22	1	48	3	18	0	6	0	2	16.3
Luangprabang	5	1	30	19	21	2	2	1	19	10.8
Huaphanh	8	2	50	10	16	5	2	2	5	15.5
Xayabury	13	7	37	4	7	0	5	2	24	3.8
Xiengkhuang	5	0	18	29	28	2	5	1	13	12.7
Vientiane	10	8	30	5	3	5	22	0	16	2.0
Borikhamxay	25	5	19	24	16	0	0	0	11	2.5
Khammuane	24	2	32	24	9	1	5	1	2	11.4
Savannakhet	6	0	40	11	33	3	3	2	3	14.8
Saravane	3	0	26	5	60	1	3	0	0	28.1
Sekong	8	0	36	9	28	0	3	8	8	16.5
Champasack	3	4	52	10	4	0	11	0	15	3.6
Attapeu	5	6	53	18	8	2	7	0	1	11.3
Xaysomboun SR	25	0	38	25	12	0	0	0	0	5.5
National	8	1	37	14	27	3	3	1	5	11.4
Urban	13	2	32	19	9	1	4	1	17	2.3
Rural	7	1	37	13	28	3	3	1	5	14.2
Quintile:										
1	8	1	34	13	34	2	3	1	4	23.3
2	7	2	35	15	25	4	4	2	5	14.5
3	9	1	38	13	26	4	3	0	7	9.6
4	6	3	45	12	19	4	4	2	5	6.3
5	8	0	45	15	16	2	2	1	11	4.2
Priority Districts:										
1stpriordist	7	1	35	13	32	4	2	1	4	18.9
2ndpriordist	8	1	40	19	21	3	2	1	6	18.0
nonpriordist	8	2	38	12	25	3	5	1	6	7.6
Altitude:										
lowland	9	1	39	13	25	1	5	1	5	7.1
mixed	9	1	30	11	37	4	4	1	3	12.0
upland	6	2	39	15	25	4	2	1	6	21.9
Gender:										
Male	10	2	37	8	28	3	4	1	6	7.8
Female	7	1	37	16	27	3	3	1	5	14.9
Ethnicity:										
lao-Tai	11	2	37	11	22	4	5	1	7	4.9
Other	6	1	37	15	29	3	3	1	5	26.2

Source: LECS3, 2002/3.

Note: *) 1=Too young; 2=Too expensive; 3=No interest; 4=Had to work; 5=School too far; 6=No teachers/supplies; 7=Illness; 8=Language; 9=Other.

Table A14: Reasons for not continuing beyond primary school, Lao PDR for those aged 12-24, by region, 2002/3 (%)

	Reason for not continuing after primary school *)								% of population not continuing
	1	2	3	4	5	6	7	8	
Province:									
Vientiane City	10	32	34	15	0	6	0	3	10
Phongsaly	8	20	45	20	0	0	0	7	10
Luangnamtha	1	46	42	7	0	2	0	2	13
Oudomxay	6	16	18	58	0	0	0	2	7
Bokeo	8	42	23	18	0	2	0	7	11
Luangprabang	2	19	53	13	0	4	0	9	13
Huaphanh	12	35	32	15	0	3	0	3	12
Xayabury	3	27	40	22	1	0	0	6	31
Xiengkhuang	0	19	58	13	6	0	0	4	7
Vientiane	5	29	42	14	1	3	1	5	17
Borikhamxay	11	10	53	20	0	0	0	5	16
Khammuane	7	21	51	9	0	2	0	10	11
Savannakhet	11	24	39	19	1	2	0	3	10
Saravane	2	50	25	16	0	8	0	0	7
Sekong	4	45	40	3	0	0	0	8	17
Champasack	8	25	32	23	0	5	0	7	15
Attapeu	12	50	24	14	0	0	0	0	4
Xaysomboun SR	13	38	30	3	0	0	3	13	13
National	7	27	39	18	0	3	0	5	13
Urban	15	31	38	7	0	4	0	5	8
Rural	5	26	40	20	0	3	0	5	14
Quintile:									
1	7	26	35	22	1	3	0	6	13
2	7	27	40	18	1	2	0	5	14
3	8	29	42	13	0	2	0	6	13
4	6	24	41	20	0	4	0	5	12
5	6	30	38	17	0	3	0	5	12
Priority Districts:									
1stpriordist	6	22	43	22	1	2	0	5	12
2ndpriordist	3	18	34	31	2	4	1	8	16
nonpriordist	8	31	40	14	0	3	0	5	12
Altitude:									
lowland	9	29	36	17	0	3	0	5	12
mixed	3	25	43	19	1	2	0	7	13
upland	5	23	44	19	0	3	0	6	14
Gender:									
Male	7	31	36	16	0	4	0	6	11
Female	6	24	42	20	0	2	0	5	14
Ethnicity:									
Lao-tai	7	28	39	18	0	3	0	4	11
Other	5	24	42	17	1	3	0	8	17

Source: LECS3, 2002/3.

Note: *) 1=Too expensive; 2=No interest; 3=Work; 4=School too far; 5=No teachers/supplies; 6=Illness; 7=Language; 8=other.

**Table A15: Household education expenditures by urban/rural location, and poor/non-poor status
1997/8 to 2002/3 (%)**

	Urban	Rural	Total
Total	2002/3	2002/3	2002/3
Share of total expenditures	7.1	3.0	4.0
Exp. per student	47615.6	17837.5	25669.3
Non-poor			
Share of exp. To education	6.7	2.9	4.0
Exp. per student	52430.8	20752.4	30253.6
Poor			
Share of exp. To education	9.3	3.1	4.0
Exp. per student	25569.3	11538.5	13898.5

Source: LECS3, 2002/3.

Note: Expenditures are deflated by a regional price index and expressed in real 2002/3 KIP per month.

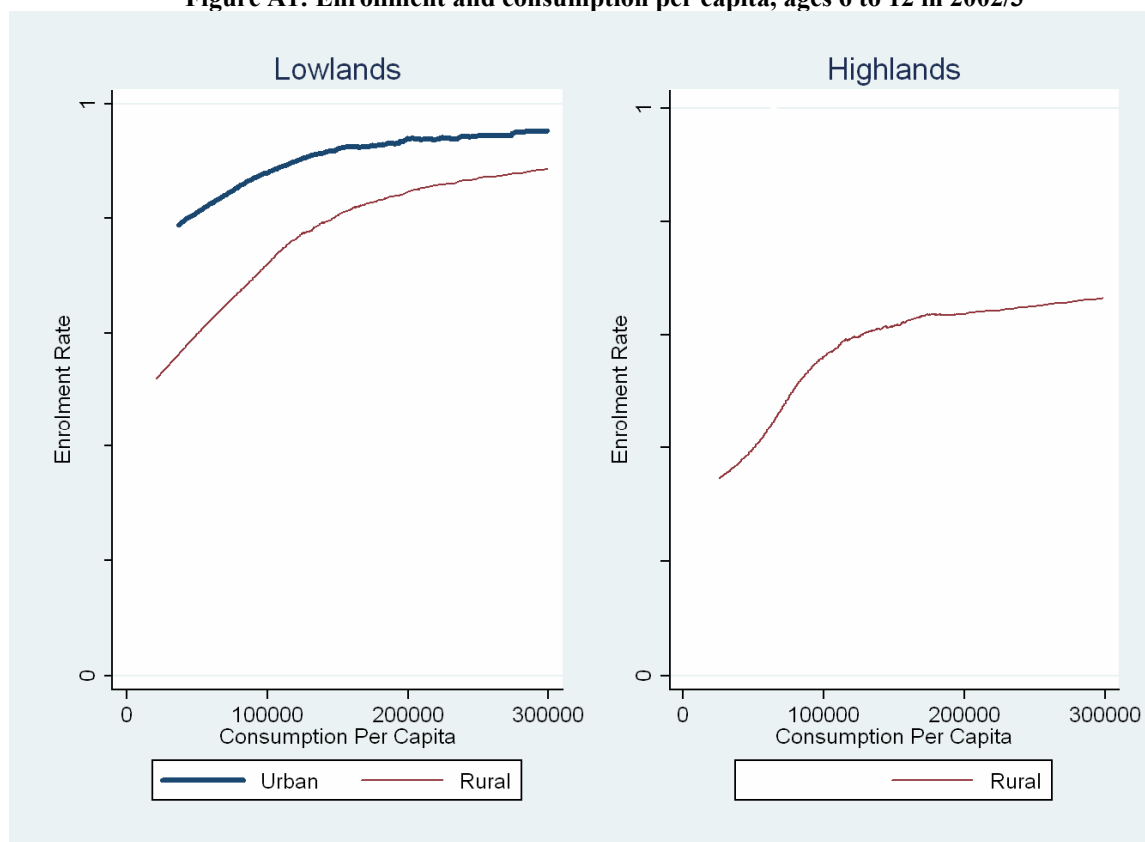
Table A16: Access to primary school characteristics by national quintiles of the urban and rural population, Lao PDR 2002/3

	Urban					Rural				
	National consumption per capita quintiles					National consumption per capita quintiles				
	1	2	3	4	5	1	2	3	4	5
School										
Complete Primary School (%)	12.5	9.5	8.5	8.8	8.1	5.6	7.0	7.6	7.2	7.4
Multi Grade (%)	9.7	12.8	9.9	8.1	6.1	67.2	56.8	48.1	43.2	36.1
Pupil to teacher ratio (ratio)	31.9	32.0	31.8	30.9	29.4	32.0	31.2	31.4	29.3	28.2
Teachers:										
Male (%)	25.6	29.0	27.8	27.3	26.8	79.9	72.7	67.5	64.9	60.5
Lao (%)	81.5	80.6	86.2	88.6	92.7	43.5	55.5	62.0	70.0	78.7
Schooling (years)	10.0	10.1	10.2	10.0	10.1	9.3	9.6	9.9	10.0	10.0
Experience (years)	13.4	14.1	15.3	14.9	14.3	11.3	11.2	11.7	12.3	13.3
Principal:										
Male (%)	60.3	57.7	59.7	51.1	59.9	90.2	85.3	85.7	83.7	81.6
Lao (%)	81.2	75.3	82.3	84.6	90.3	44.5	55.1	62.8	72.2	78.9
Schooling (years)	10.9	10.8	10.6	10.7	10.8	9.3	9.8	9.8	9.9	9.9
Experience (years)	11.4	12.0	13.9	15.0	14.1	7.9	9.1	9.2	9.5	11.3
PTA:										
School has PTA (%)	82.7	85.4	84.9	87.3	88.3	53.6	63.1	69.6	72.4	76.2
Parents participating in PTA (%)	78.5	82.9	73.4	74.4	68.3	85.5	80.5	79.6	79.4	73.9
Compulsory fees for:										
Tuition (%)	62.8	58.8	72.1	74.8	83.6	38.8	44.4	46.5	50.9	47.2
Sports (%)	24.0	28.3	25.8	26.2	33.1	22.9	19.7	20.5	21.5	17.9
Examination (%)	55.8	59.2	65.7	66.5	76.4	41.1	44.4	46.9	48.8	55.8
Books (%)	65.5	55.1	56.3	53.6	55.8	43.2	40.4	38.4	42.1	44.9
Facilities:										
Electricity (%)	34.2	44.4	49.3	50.1	57.4	4.5	4.3	6.9	6.8	12.2
Drinking water (%)	58.8	60.9	61.8	66.7	71.5	22.8	29.1	35.8	36.5	37.1
Student toilet (%)	57.4	61.1	64.6	68.6	74.4	13.0	15.6	19.7	22.5	29.4
Library (%)	20.0	20.4	22.2	19.3	22.3	6.9	9.8	10.0	8.3	10.7
Phone line (%)	37.7	36.9	37.7	40.3	48.8	7.0	7.6	12.3	12.0	16.0
Principal's room (%)	66.8	63.8	68.9	74.0	80.6	14.9	23.6	30.4	32.6	38.1
Teachers' room (%)	57.9	55.9	57.1	64.6	60.3	12.5	17.3	23.8	23.9	29.1
Classrooms:										
Share of permanent (%)	52.4	38.9	41.8	45.0	41.5	19.7	25.5	27.7	28.8	34.3
Share with blackboard (%)	94.7	88.9	91.5	93.6	93.5	88.5	88.9	88.9	88.9	89.0
Share without leaky roof (%)	75.5	70.2	73.2	77.6	78.4	72.9	74.2	73.7	73.8	72.3
Each Student Has Desk (%)	91.4	91.5	93.4	94.4	99.1	87.7	89.5	89.7	93.1	95.4
Distance to closest:										
District Education Bureau (km)	16.4	17.7	17.9	19.1	22.9	30.8	26.0	23.1	20.3	19.6
Paved road (km)	22.1	10.7	11.5	9.9	8.8	43.3	34.3	31.0	28.7	26.8
Lower secondary school (km)	11.2	5.6	6.9	8.4	7.5	18.7	13.9	11.2	9.3	8.8
Trade store/Market (km)	16.2	16.8	9.7	11.8	12.1	25.7	21.8	19.9	18.0	16.8
Bank (km)	20.3	16.6	12.9	8.2	7.5	45.5	40.0	36.6	32.4	28.9
Public Transportation (km)	16.1	9.2	14.1	7.9	8.2	22.6	19.4	17.9	17.5	19.0
Provincial capital (km)	61.5	37.0	30.9	18.8	15.5	103.7	87.7	78.0	76.9	70.7

Source: LECS3, 2002/3, School Survey 2003.

Note: The table presents the mean school characteristics for each population quintile in urban and rural as obtained by linking school data to household data, according to the available school in the village of residence. For example, 12.5% of the poorest urban quintile lives in a village with a complete primary school. Quintiles are national population quintiles.

Figure A1: Enrollment and consumption per capita, ages 6 to 12 in 2002/3



Source: LECS3, 2002/3.

Note: Consumption per capita is deflated by a regional price index and expressed in real 2002/3 KIP/month.

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